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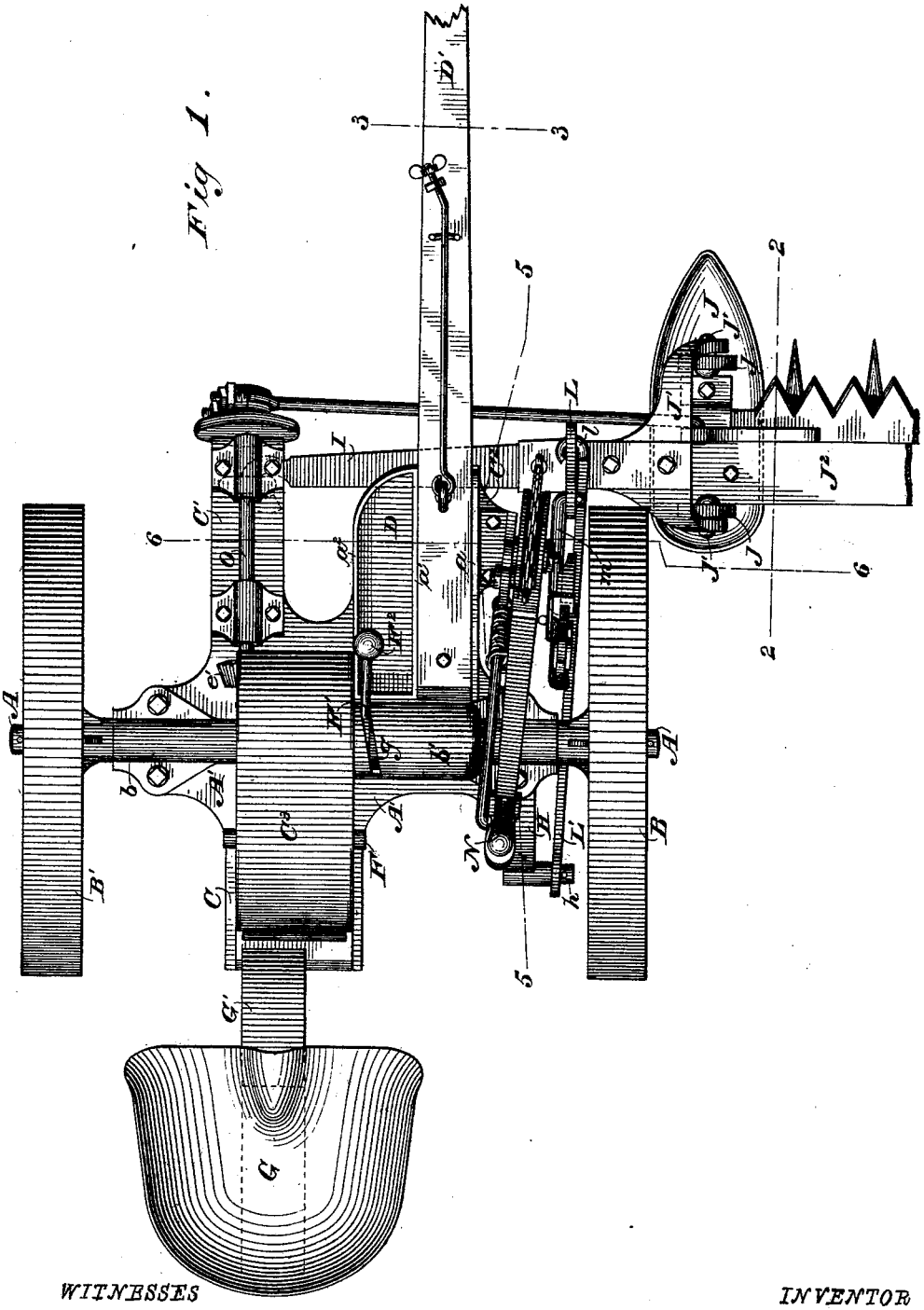
Mower.

No. 218,534. **Patented Aug. 12, 1879.**

Fig 1.



WITNESSES

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Geo W Breck

INVENTOR

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By his Attorneys

Baldwin Hopkins & Peyton

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Fig 2.

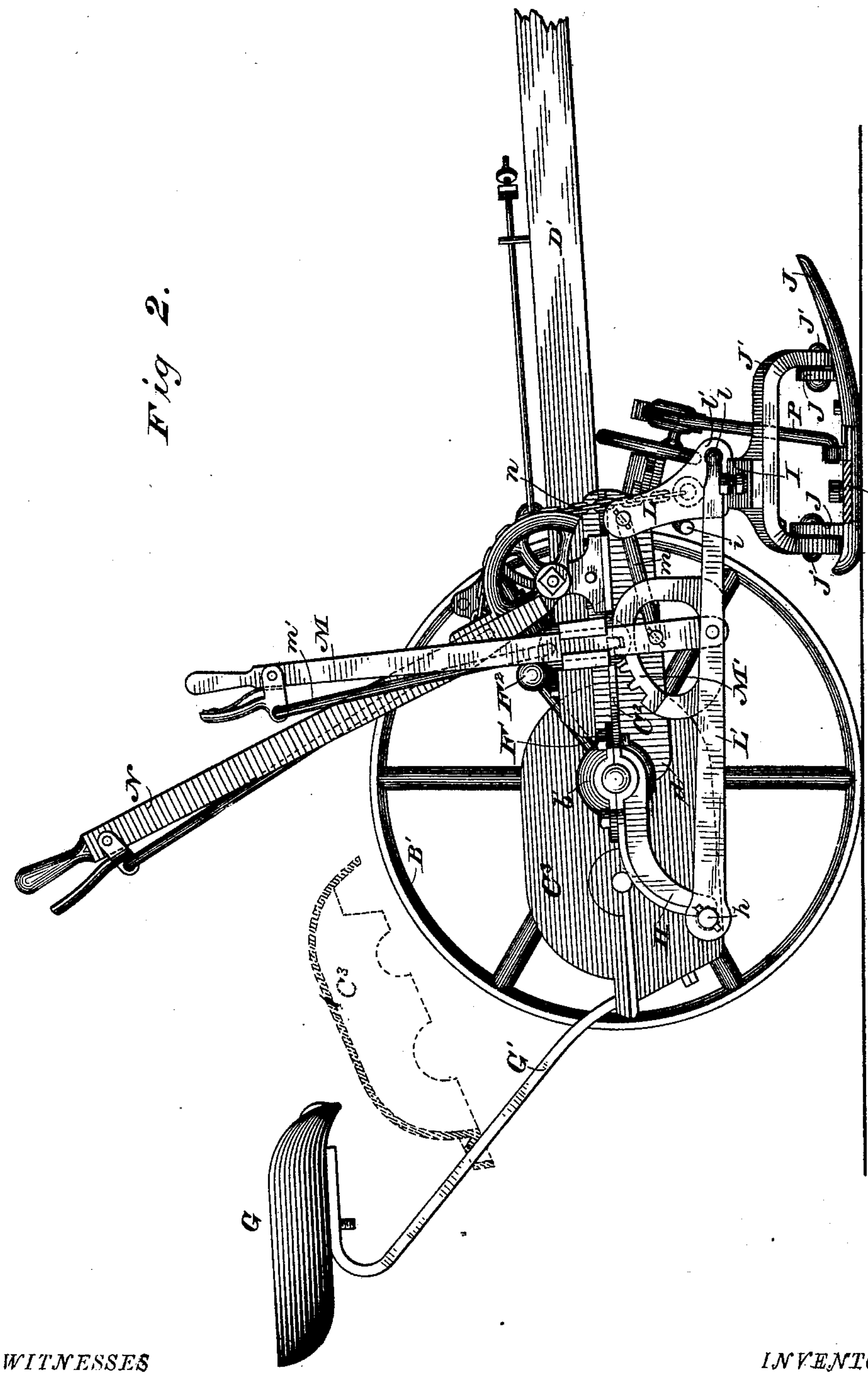

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Fig 3.

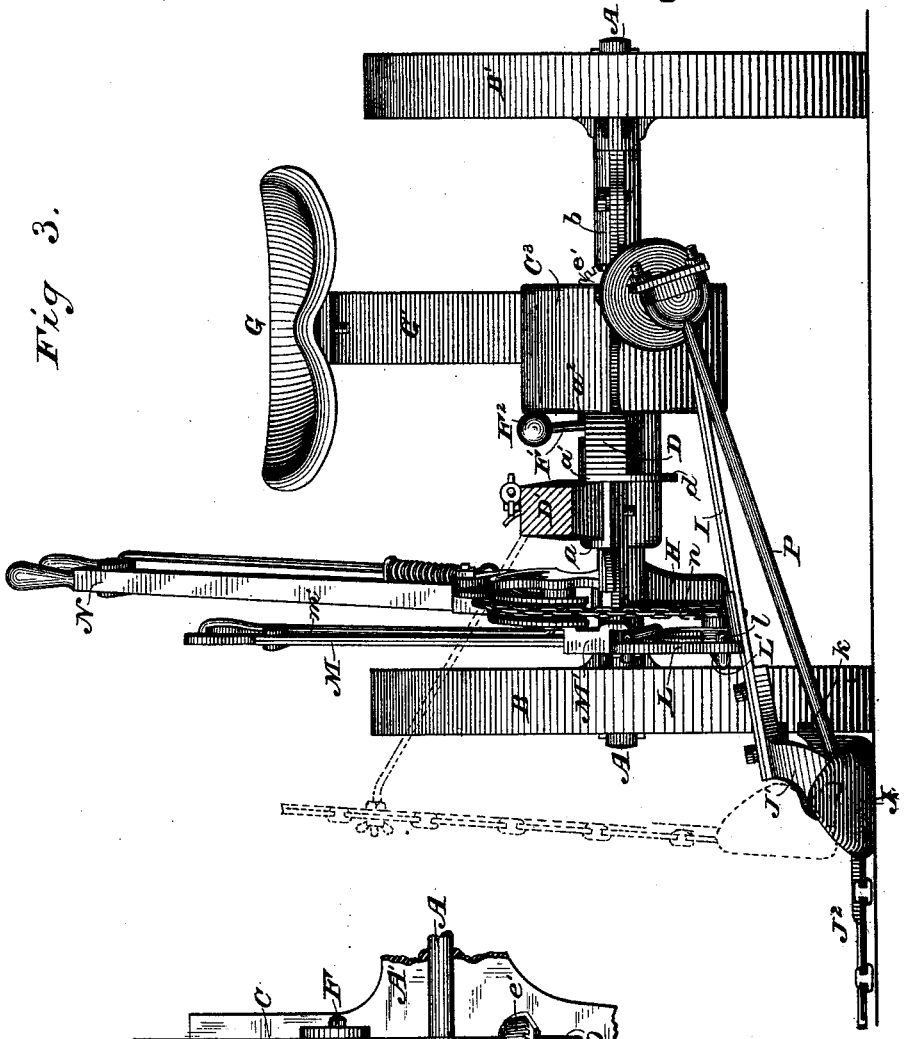

Fig 4.

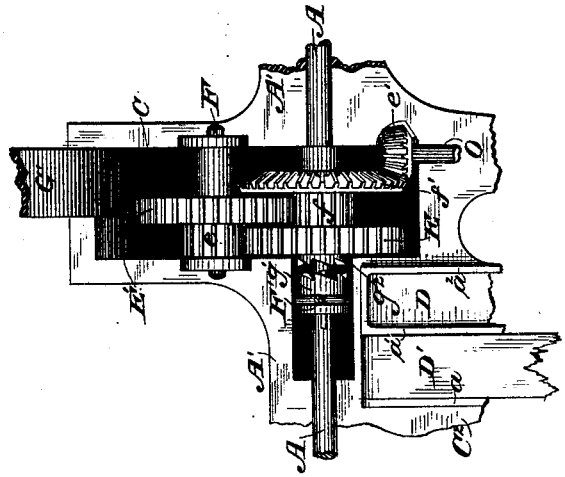

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Fig 5.

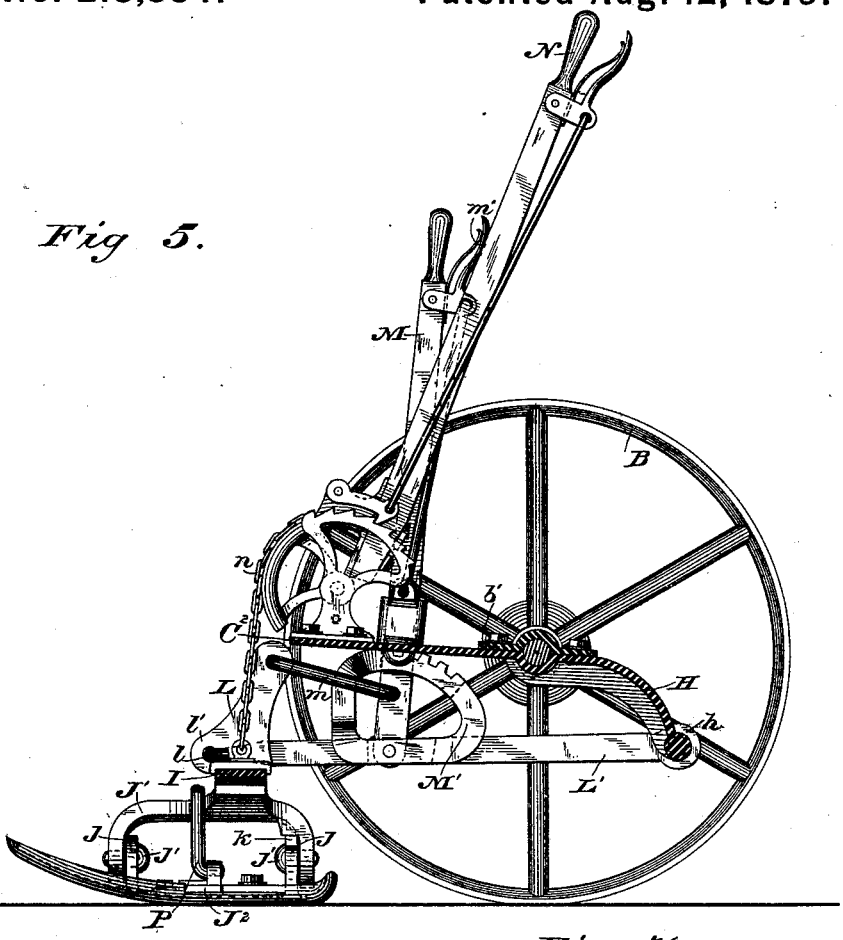

Fig 6.

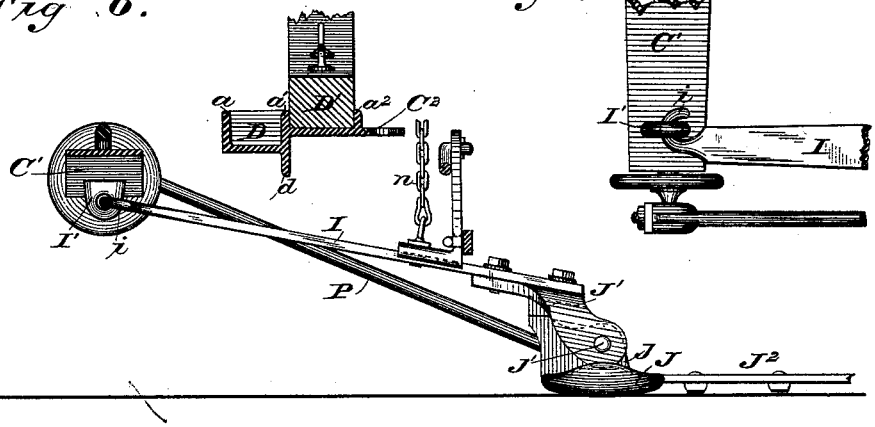

Fig 7

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UNITED STATES PATENT OFFICE.

JAMES H. JONES, OF ROCKFORD, ILLINOIS, ASSIGNOR TO EMERSON, TALCOTT & CO., OF SAME PLACE.

IMPROVEMENT IN MOWERS.

Specification forming part of Letters Patent No. **218,534**, dated August 12, 1879; application filed February 28, 1879.

To all whom it may concern:

Be it known that I, JAMES HERVA JONES, of Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Mowing-Machines, of which the following is a specification.

My invention mainly relates to improvements in mowing-machines of the class commonly known as "two-wheeled front-cut hinged-bar machines."

My object chiefly is to improve the connections between the cutting apparatus and main frame in that type of the above-mentioned general class of machines in which the finger-beam is adapted to be rocked about its longitudinal axis, as well as to be raised and lowered by the driver while in his seat.

My improvements consist in novel organizations of parts, and in certain combinations of devices hereinafter first fully described, and then specifically designated by the claims.

In the accompanying drawings I have shown all my improvements as embodied in a harvesting-machine of the construction I prefer. Obviously, however, some of the improvements may be used without the others, and in connection with machines differing somewhat as to details of construction from that therein shown, and hereinafter specifically described.

Figure 1 is a plan or top view of a machine embodying all my improvements, a portion of the finger-beam and cutter-bar being broken away; Fig. 2, a side elevation with the inner supporting-wheel removed and the cutting apparatus in section on the line 2 2 of Fig. 1; Fig. 3, a front elevation with the tongue in section on the line 3 3 of Fig. 1. Fig. 4 is a plan or top view of a portion of the main frame, showing the gearing and that portion of the casing therefor which is cast with the frame. Fig. 5 is a view, partly in side elevation and partly in vertical section, on or about the line 5 5 of Fig. 1. Fig. 6 is a view, partly in elevation, as seen from the rear, and partly in vertical section, on the line 6 6 of Fig. 1; and Fig. 7 is a view of the under side of the outer end of the crank-shaft-supporting arm or forwardly-projecting corner portion of the main frame, showing the coupling-arm hooked connection therewith.

The main axle A is supported on the wheels B B′, both of which may be loosely mounted and be provided with backing-ratchets to constitute driving-wheels. In this instance, however, there is but a single driver, the wheel B being loose, and the wheel B′ keyed to the axle to act as a driving-wheel. The axle A revolves in suitable bearings in the main frame A′, which is of metal, preferably cast in a single piece, with half-boxes for the axle, a depression or cavity constituting the lower half or section, C, of the gear-casing, a forwardly-extending arm or narrow corner projection, C^1, for the crank-shaft, and to connect with the coupling-arm, and a tongue-socket and tool-box projecting portion or forward extension, C^2. This tongue-socket and tool-box arm or extension of the main frame is of peculiar construction. The upwardly-projecting flanges or top ribs a a^1 thereof form between them the socket for the tongue, and the latter flange and the flange a^2 form the sides or walls of the tool-box D. The bottom of the tool-box is below the level of the lower side of that portion of the frame extension C^2 upon which the tongue D′ is bolted, and the rib or flange d beneath or forming a continuation of the rib a^1 projects downward below the bottom of the tool-box. By this construction the frame is rendered very strong at the point where the tongue is attached to it, where it is subjected to great strain, and a tool-box is provided at a slight cost.

Suitable removable half-boxes, bearing-covers, or cap-pieces b b' are provided for the main axle, as usual.

The gearing for driving the cutters consists of the loosely-mounted spur-pinion E, adapted to be locked with or disengaged from the axle, and serving to impart motion to the small pinion e and its attached pinion E′ on the counter-shaft F. The pinion E′ serves to drive a corresponding pinion, f, on the main axle, and through it the attached bevel-pinion f' and the crank-shaft pinion e'. This gearing is such as commonly employed, and operates, when in action, in a well-known way.

To throw the gearing into and out of operation, a weighted shipping-lever, F^1, is provided. This lever swings back and forth in an in-

clined or diagonal slot, g, in the bearing-cover or cap-piece b', and is connected with the movable section g^1 of the shifting-clutch connection between the pinion E and the main axle A. This clutch-section g^1 is movable endwise on the axle, but always rotates therewith, being engaged with it, as is well understood.

When the lever is thrown forward (by a kick of the driver's foot) the section g^1 of the clutch engages with the clutch-section g^2 on the driving-pinion E, and throws the cutters into operation.

The weight F^2 holds the lever in the position to which it is adjusted by the driver with his foot. In this way the cutters may readily be thrown into or out of operation with but slight attention on the part of the driver, and without employing spring-detents, locking-racks, &c., by a simple forward or backward pressure or kick by the driver's foot.

The driver's seat G is mounted on a spring-standard, G′, removably secured at its lower end by a bolt or bolts upon the inside of the rear end of the main-frame portion of the casing for the gearing. The adjustable section or cover half C^3 of the gearing-casing is slotted at its rear end, and fitted loosely on the seat-standard G′, so that it may rock or tip vertically thereon as though hinged, and may also be moved upward bodily by sliding on the standard, and be held in such position when released, to afford a full view of the gearing, admit of repairs, &c.

A down-hanger or brace-attaching arm, H, formed by a rearwardly-projecting downwardly-curved arm of the frame near the wheel B, completes the main frame in connection with those parts before described. A stud, h, projects laterally from the lower end of this down-hanger, for a purpose hereinafter to be described.

The cutting apparatus, of usual and suitable construction, is connected with the main frame by hinged connections, which support it in advance of the axle, brace it against lateral strains, and adapt it to be elevated and lowered while in operation, to change the height of cut, pass obstructions, &c.

The cutting apparatus may be thrown up and held (see dotted lines, Fig. 3) for transportation. The finger-beam may also be rocked about its longitudinal axis to tip the guards and elevate or depress their points.

The connections between the cutting apparatus and frame of the machine are as follows: A coupling-arm, I, crosses the front of the machine beneath the tongue, and is jointed by a hook, i, at its inner or heel end, beneath the forwardly-projecting arm or crank-shaft-supporting extension C^1 of the main frame. The hook i engages a socket, eyebolt, or staple, I′, beneath the arm C^1, near its front end, so that the coupling-arm may be rocked or vibrated vertically about its heel end or hook—that is, it may be turned about a transverse axis, and also be capable of rocking or turning about its longitudinal axis. The coupling-arm is straight, or practically straight, and is made wide enough to resist transverse strains. The coupling-arm extends from over the shoe to its heel end in about the plane of the finger-beam—that is to say, the finger-beam and coupling-arm are in a common vertical plane, or substantially so. At its outer or free end the coupling-arm passes in advance of the axle and in front of the supporting-wheel to its shoe-connections, and is forked to connect with lugs or short standards j j upon the shoe J. These forks are shown as forming part of a yoke, J^1, straddling the heel end of the finger-beam J^2, and made separately from and rigidly bolted to the outer end of the coupling-arm. The yoke arms or forks may be in one piece with the coupling-arm, but are preferably separate to facilitate repairs, removal, &c. Pivots j' j' pass through the shoe-lugs and the downwardly and out curved ends or arms of the yoke, in line with each other and transversely to the finger-beam. The rear lug, j, of the shoe has a short arm or inward projection, k, which abuts against the under side of the yoke J^1, or against a lug thereon, to limit the descent of the outer end of the finger-beam by dogging its heel against too great upward play, as will readily be understood.

From the above description it will be seen that the coupling-arm may be readily detached from the main frame simply by unhooking it from the eye or staple I′ beneath the arm C^1, and that the cutting apparatus may be elevated or rocked transversely by giving the desired movements to the coupling-arm.

To give a rolling or rocking movement about its longitudinal axis to the coupling-arm, and through it to the cutting apparatus, a draft-arm or push-bar connecting bracket L is rigidly attached to the coupling-arm I, near its outer end or yoke, J^1, and a push-bar or brace-arm, L′, is jointed by its hook l with the draft-arm in front of and slightly above the coupling-arm.

An eye, l', in the draft-arm serves to make the connection between the front end of the push-bar and the coupling-arm above and in front thereof.

At its rear end the push bar or brace L′ is jointed to the stud h of the down-hanger H. This push-bar crosses beneath the axle inside of and close to the supporting-wheel B.

The draft-arm L is connected at its top with a lever, M, by which to rock it and the coupling-arm. This lever is pivoted at its lower end to the inside of the push-bar L′, and linked by a rod, m, with the top of the draft-arm.

To give the proper amount of leverage for rocking the coupling-arm and finger-beam, the draft-arm extends upward and backward from the coupling-arm.

The link m, pivoted at its opposite ends to the draft-arm upper end and to the lever M near its lower end, serves to rock the coupling-arm backward and forward, as desired.

A detent rack or sector, M′, secured to the

inside of the push-bar L′, and a spring-detent, *m′*, on the lever, serve to lock the parts in the adjusted position. The sector M′ and lever M, being thus mounted on the push-bar, always occupy the proper relative positions, and the pulls and thrusts on the lever and on the link-rod *m*, connecting it with the draft-arm L, are direct.

A lifting-lever, N, is mounted on a bracket at the side of the arm C^2 of the frame, near the heel of the draft-pole D′. A chain or cord, *n*, and suitable detent devices serve to elevate and lower the cutting apparatus and hold it at the desired elevation in a well-known way.

The crank-shaft O is mounted in suitable bearings on top of its supporting-arm C^1, above the heel end of the coupling-arm. A crank-wheel and pitman, P, drive the cutters in the usual way.

By casting the main frame in one piece with the arm C^1, for supporting the crank-shaft and to connect with the coupling-arm, and with the ribbed tongue-socket and tool-box projection C^2, I make that portion of the frame which projects in advance of the axle and is subjected to great lateral strains very strong at minimum cost, and with the least practicable expenditure of material.

As any sudden and violent strain upon the finger-beam, such as would result were a stump encountered by the cutting apparatus, is transferred first to the main frame by its connections with the finger-beam, and finally to the tongue and team, it is of great importance that that portion of the frame to which the tongue is fastened, and which bears the final strain in checking the machine, should be of ample strength, as shown.

I claim as my own invention—

1. The combination of the main frame, the coupling-arm in the vertical plane of the finger-beam, having a hook at its inner end jointed to the main frame at a point in advance of the main axle, and the shoe to which the coupling-arm is secured at its outer end, substantially as hereinbefore set forth, to render the coupling-arm readily detachable from the frame, and give it the capacity of vertical adjustment and of rocking about its longitudinal axis, as described.

2. The combination of the main frame, the push-bar provided with a hooked end, and the coupling-arm, with which and above and in front of its upper surface the hook of the push-bar is connected, substantially as hereinbefore set forth.

3. The combination, substantially as hereinbefore set forth, of the main frame, the coupling-arm, the push-bar, the draft-arm on the coupling-arm, the lever pivoted on the push-bar and connected with the draft-arm, the spring-detent, and the sector mounted on the push-bar.

4. The combination of the coupling-arm, having the forked yoke at its outer end and the hook at its inner end, the crank-shaft-supporting arm C^1 of the main frame, beneath which the coupling-arm is jointed by its hook, the shoe having the front and rear lugs, to which the coupling-arm is jointed, the lifting-lever and chain, the draft-arm, and the rocking lever connecting with said draft-arm, these members being and operating substantially as hereinbefore set forth.

5. The combination of the coupling-arm, the draft-arm thereon, the push-bar hook-jointed to the draft-arm, the lever mounted on the push-bar, the link connecting the lever and the draft-arm, and the sector secured upon the push-bar and serving to lock the lever, substantially as hereinbefore set forth.

6. The combination of the main frame, provided, in advance of the axle, with the forwardly-extending crank-shaft-supporting corner-arm C^1, and tool-box and tongue-socket extension C^2, and in rear of the axle with the down-hanger H, the coupling-arm hook-jointed at its heel end to the arm C^1, and forked and pivoted to the shoe at its outer end, the push-bar L′, jointed to the main-frame down-hanger, and having the hook-connection with the coupling-arm, the lever M, mounted on the push-bar and connected with the coupling-arm, and the lever N, also connected with said arm, the combination being and operating substantially as hereinbefore set forth.

7. The combination of the fixed half or lower section of the gear-casing, the seat-standard, and the upper half or cover-section of the casing tipping on the seat-standard, substantially as hereinbefore set forth.

8. The gearing-casing adjustable section or cover, slotted at its rear end to embrace the seat-standard and adjustable thereon, substantially as hereinbefore set forth.

In testimony whereof I have hereunto subscribed my name.

JAMES HERVA JONES.

Witnesses:
D. M. HOLLINGSWORTH,
WM. H. PASCOE.