

Oct. 25, 1949.

M. S. BROWN

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COTTON CHOPPER AND TOBACCO PATER

Filed July 13, 1945

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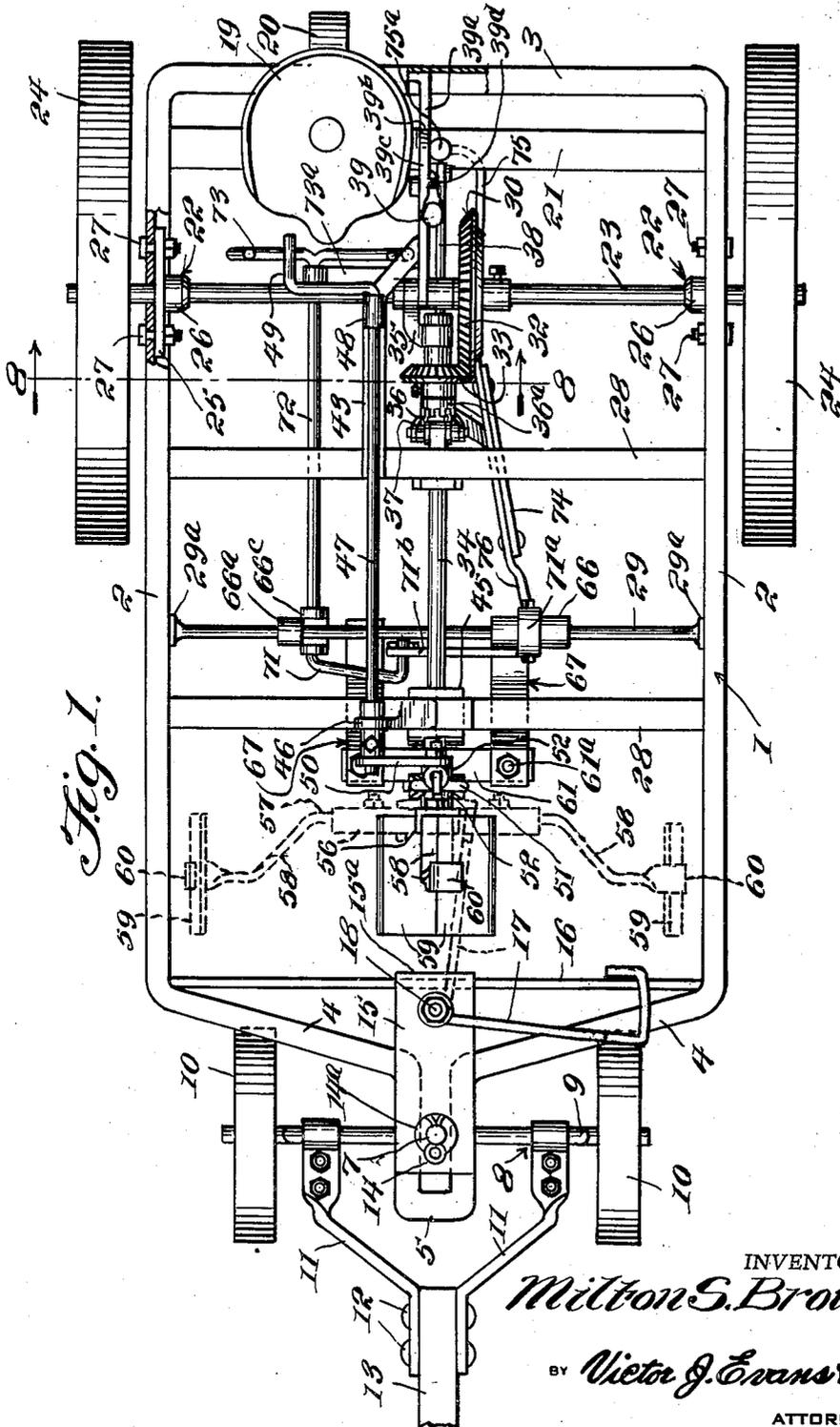


Fig. 1.

INVENTOR.  
*Milton S. Brown,*  
BY *Victor J. Evans & Co.*  
ATTORNEYS

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M. S. BROWN

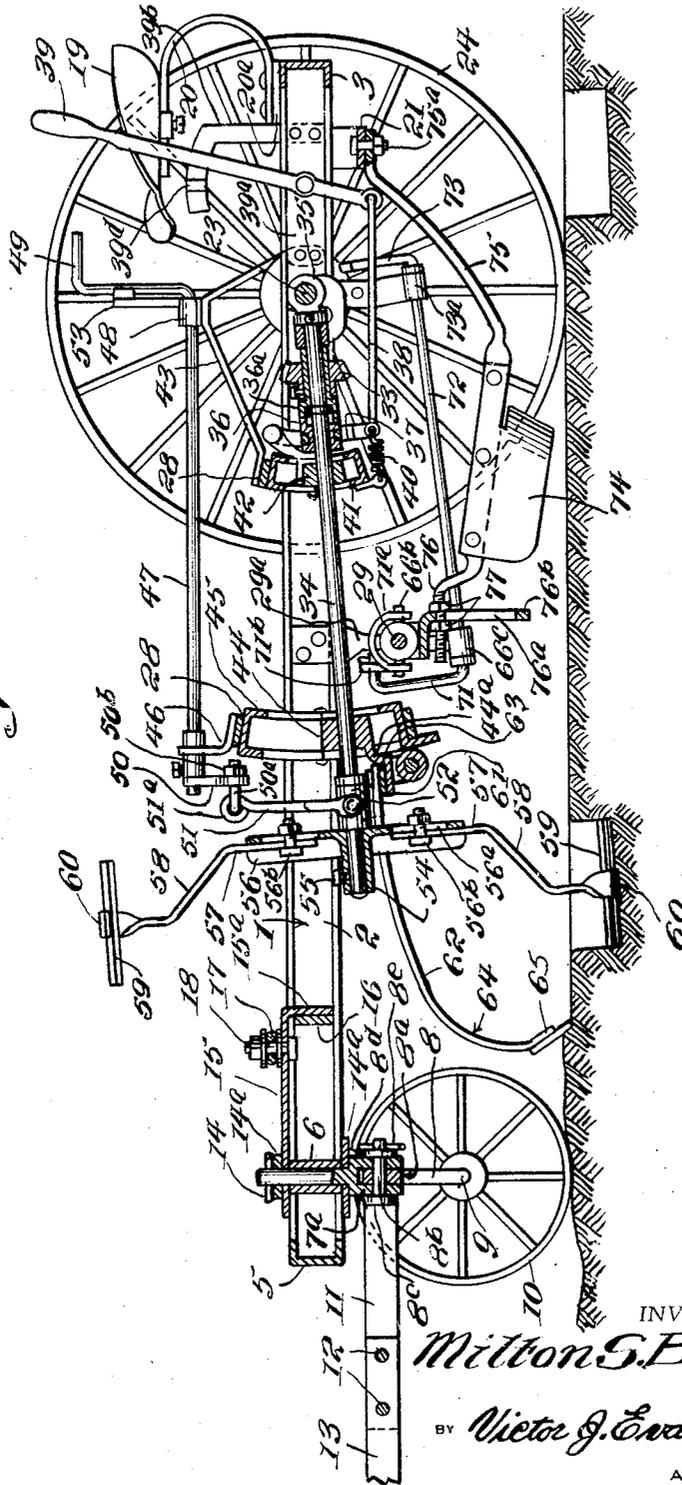
2,485,693

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5 Sheets-Sheet 2

*Fig. 2.*



INVENTOR.

*Milton S. Brown,*

BY *Victor J. Evans & Co.*

ATTORNEYS

Oct. 25, 1949.

M. S. BROWN

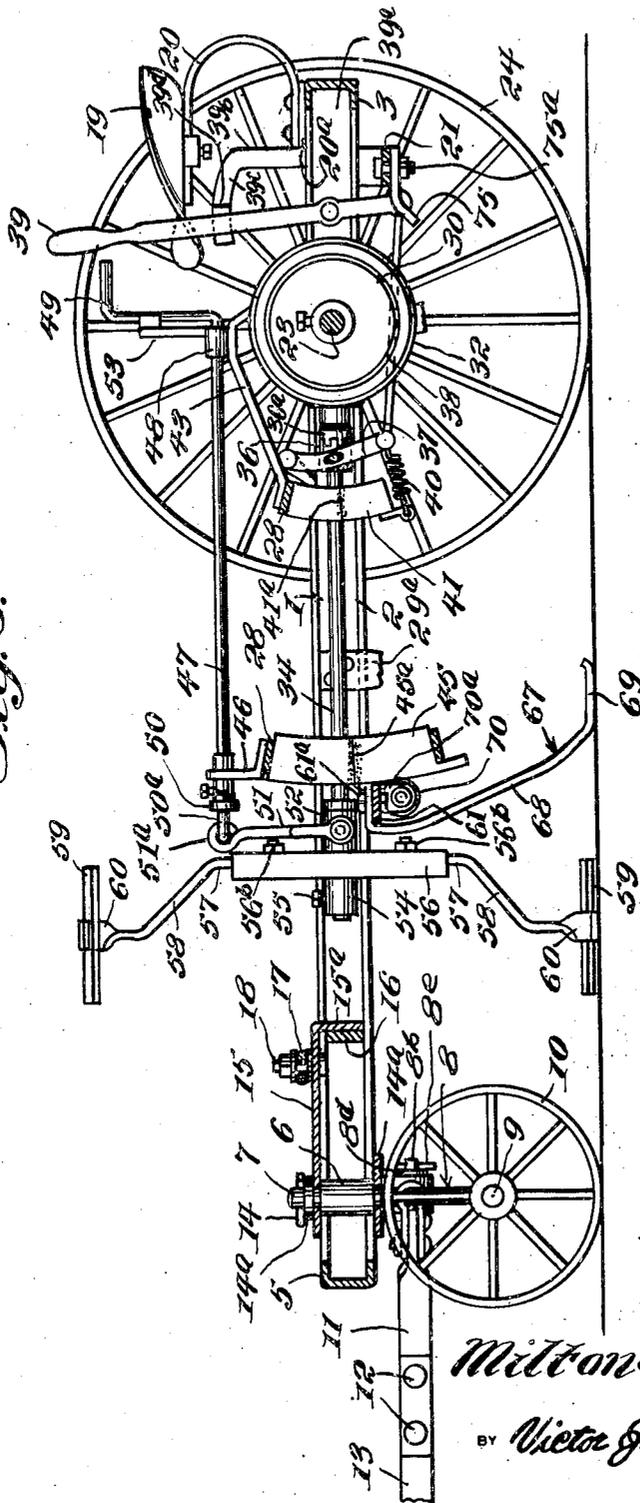
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5 Sheets-Sheet 3

Fig. 3.



INVENTOR.

Milton S. Brown,

BY Victor J. Evans & Co.

ATTORNEYS

Oct. 25, 1949.

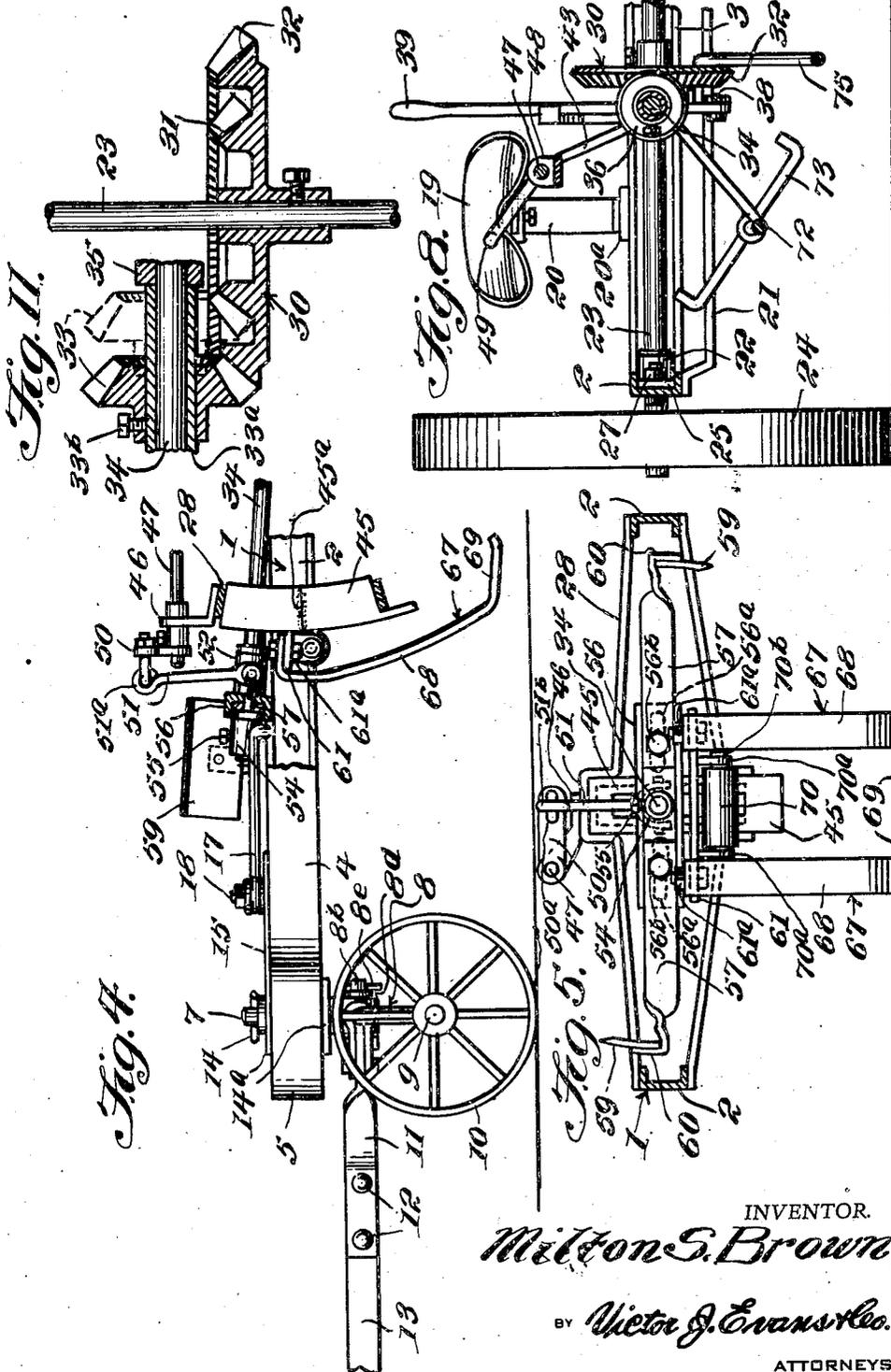
M. S. BROWN

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COTTON CHOPPER AND TOBACCO PATTEN

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INVENTOR.  
*Milton S. Brown,*

BY *Victor J. Evans & Co.*

ATTORNEYS

Oct. 25, 1949.

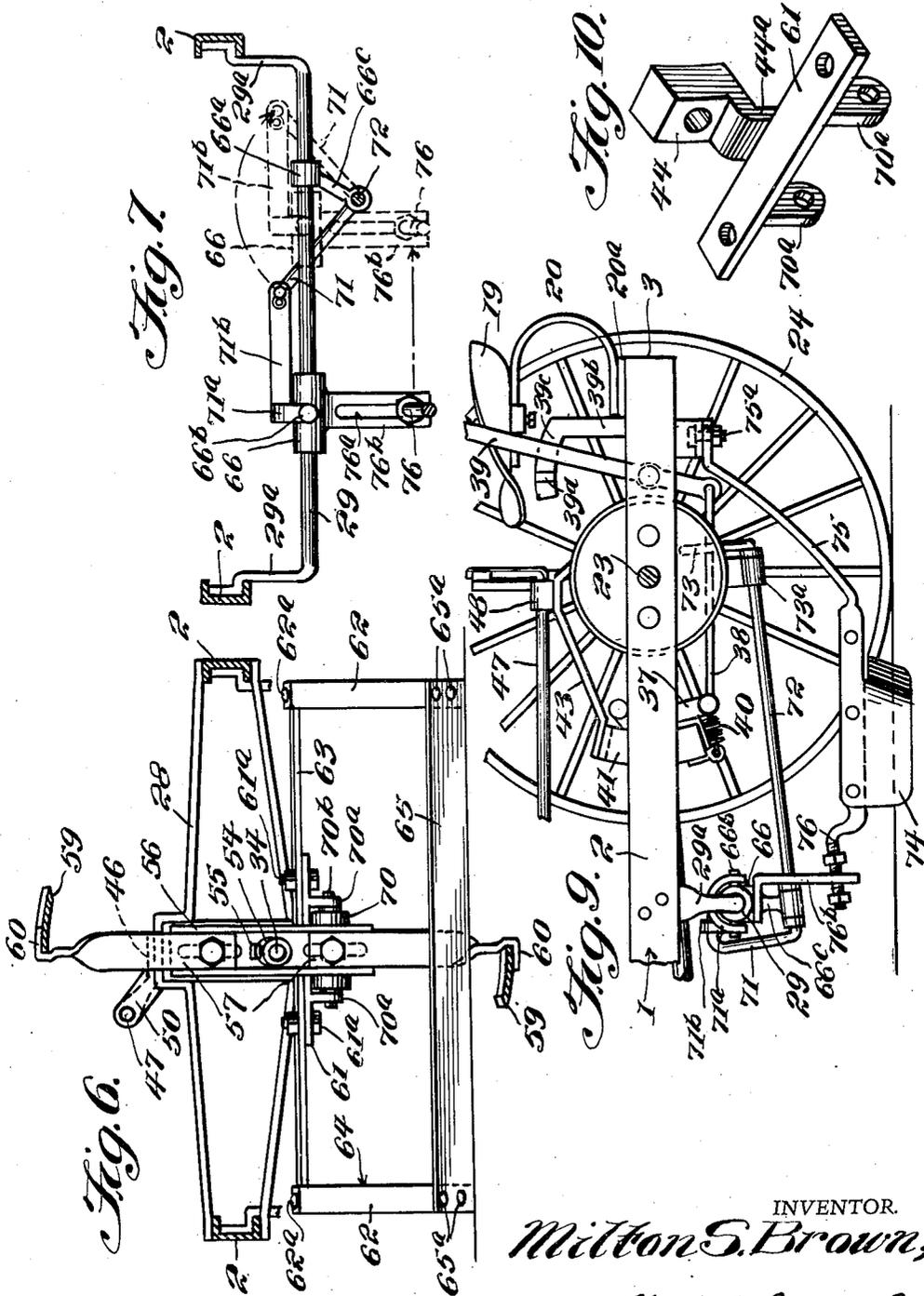
M. S. BROWN

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COTTON CHOPPER AND TOBACCO PATER

Filed July 13, 1945

5 Sheets-Sheet 5



INVENTOR.  
*Milton S. Brown,*

BY *Victor J. Evans & Co.*

ATTORNEYS

# UNITED STATES PATENT OFFICE

2,485,693

## COTTON CHOPPER AND TOBACCO PATTEN

Milton S. Brown, Warrenton, N. C., assignor of  
one-half to La Fayette L. Brown, Macon, N. C.

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1 Claim. (Cl. 97—15)

1

My present invention, in its broad aspect, relates to improvements in agricultural machines.

It is my purpose to provide a machine so constructed that it may be easily and readily converted from use as a cotton chopper, to a labor and time saving means for turning down tobacco hills and levelling the same. Included in the machine are means for changing the sequence of operation of those parts so that they will be effective at different intervals to conform to the spacing of cotton plants and tobacco hills. Furthermore, another object of my invention is to provide a practicable operable means for quickly and simply throwing all of these parts into and out of operation, such means being convenient and accessible to the operator. An additional object is to provide means for dragging and covering declivities. Heretofore, much work in chopping cotton plants, and in leveling tobacco hills had been done by hand, which is a laborious and time consuming operation. For instance, to carry out the equivalent operation of my device in a tobacco field by hand labor, it has heretofore been necessary to walk over the field and set the tobacco plants by hand; then smooth the hills by hand with a hoe, and next drag down the field with a horse drawn drag. My present invention eliminates this hand labor and, in addition, includes a practicable and improved cotton chopper.

Other and equally important objects and advantages of my invention will be apparent from the following description and drawings, and it is emphasized that changes in the form, size, shape, and construction and arrangement of parts is permissible and within my broad inventive concept and the scope of the appended claim.

In the drawings wherein I have illustrated a preferred form of my invention—

Figure 1 is a top plan view of the same with the parts in operation as a cotton chopper;

Figure 2 is a longitudinal section through my machine, with the parts arranged to function as a tobacco tamper;

Figure 3 is a side elevation with the parts arranged for use as a cotton chopper;

Figure 4 is a detail showing the hold-up hook applied to the chopping device and the drag;

Figure 5 is a transverse section showing the rotatable chopper, the roller and drags with associated parts;

Figure 6 is a transverse section showing the rotatable member or brush used as a tobacco tamper and the drag and frame elements;

2

Figure 7 is a view of the sliding drag supporting means;

Figure 8 is a section on the line 8—8 of Figure 1;

Figure 9 is a longitudinal section through the rear of the machine showing the seat, the covering blade with spring support and clutch elements;

Figure 10 is a perspective detail of the sliding block support for the tobacco tamper to move the same into and out of engagement with the ground when the rotatable element is raised or lowered; and

Figure 11 is a view of the intermeshing gear drive with changeable gears to adapt the apparatus for use as a cotton chopper or tobacco hill leveler by changing the cycle of operation.

In the drawings wherein like characters of reference are used to designate like or similar parts throughout the several views:

The numeral 1 designates the frame of my device which has side rails 2, a rear end rail 3 and front rails 4 angled forward to a tongue extension 5 through which is journaled as at 6 the vertical king bolt 7 which is provided with an apertured bifurcated end 7a adapted to receive the bearing 8a formed at the center of the front wheel carriage 8. A pin 8b having a head 8c is received in the apertured end 7a and the bearing 8a thereby pivotally connects the front wheel carriage 8 to the king bolt 7 permitting tilting movement of the front wheel carriage 8 when my device is traveling over rough uneven terrain. The pin 8b is retained in position by a key 8c and a washer 8d. The front wheel carriage has a transverse supporting axle 9 extending from opposite sides of the bearing 8a, the ends of which are bent downwardly and outwardly to form hubs for mounting the front wheels 10 and a pair of coupling arms 11 attached as at 12 to the shaft or tongue 13 for drawing the apparatus over the ground, either by horse or tractor power. A suitable member 14 and washers 14a are provided on the king bolt to hold the same pivotally in engagement with the tongue 5, and an elongated plate 15 extends over the top of the tongue 5 and is flanged downwardly as at 15a to engage a transverse reinforcing rail 16. The plate pivotally mounts a hook 17 as at 18.

A seat 19 is mounted on the usual spring curved seat support 20 attached to a plate 20a on the rear end rail 3 and a transverse reinforcing bar 21 extends between the side rails under the seat. Journaled as at 22 forwardly of the seat is the axle 23 of the ground wheels 24, there being a

3

plate 25 carrying a journal bearing 26 bolted as at 27 to each side rail 2—see Figure 1. Other transverse reinforcing bars 28 are mounted between the side rails intermediate the ends of the frame, and a transverse shaft 29 is supported from the side rails 2 intermediate the ends of the frame and in front of the axle 23 by depending arms 29a.

Mounted on the axle 23 is a double beveled gear 30 having the sets of gear teeth 31 and 32 respectively—see Figure 11—which are designed to cooperate and mesh with a driven pinion 33 mounted on the sleeve 33a and fixed thereto by a set screw 33b. The sleeve 33a is slidably mounted on a longitudinal shaft 34. The shaft 34 has a fitting with an arm 35 for pivotal attachment to the shaft 23 so that the shaft may be swung up and down, and a clutch element 36 on the shaft 34 is adapted to engage the clutch element 36a on the sleeve 33a to move the pinion 33 into and out of engagement with the respective gear teeth 31 and 32 of the beveled gear 30. The clutch element 36 has a yoke 37 which is connected by a rod 38 with the clutch shift lever 39 which is pivoted on the bracket 39a secured at one end to the rear end rail 3 and at the other end is apertured to receive the shaft 23, see Figure 2. An upstanding bracket 39b has an arcuate portion 39c having a notched stop 39d formed therein for the lever 39, the use of which will be later explained. A spring 40 is attached to the end of rod 38 and has its other end attached to an arcuate channeled shape frame 41 to tension the clutch operating mechanism.

The arcuate channel shape frame 41 has a sliding bearing block 42 for supporting the shaft 34 and is supported by a bracket 43 secured to the bracket 39a. The frame 41 is made of two channel shape sections and after the bearing block 42 has been positioned therein, it is welded at 41a to form a unitary structure. The channel formation of the frame 41 retains the block 42 in position therein.

The forward end of the shaft 34 is journaled in a bearing block 44 positioned in a second arcuate channel shaped frame 45 which is constructed in the same manner as frame 41 being welded as a unit at 45a, and the frame 45 is mounted forward of the frame 41 and has attached thereto a bracket 46 mounting the forward end of a control rod 47, the rear end of which is mounted in a bracket 48 secured to the bracket 43 of frame 41—see Figure 2. A handle 49 on the rod 47 adjacent the seat 19 permits turning of the rod 47. The rod 47 has an arm 50 at its end to which is secured by means of a nut 50b an eye 50a for pivotally engaging the eye 51a of a link 51 pivoted to a collar 52 on the shaft 34 by means of the pin 52a and is adapted thereby to raise and lower the shaft 34. The handle 49 coacts with an upstanding keeper 53 formed on bracket 48 to retain the handle in the desired position.

Mounted by means of a sleeve 54 fixed by a set screw 55 to the front end of the shaft 34 is a channel shaped plate 56 having elongated slots 56a which are adapted to receive bolts 56b for adjustably bolting a pair of arms 57 bent forwardly and upwardly as at 58 and carrying blades 59, thereto. By lowering the shaft 34 as in Figure 2, the device operates to trench between tobacco hills as shown, and by raising the shaft 34, the blades 59 operate at ground level to chop cotton plants as shown in Figure 3. The raising

4

and lowering of the shaft 34 being accomplished by means of the control rod 47 and when in chopping position, the rod 47 is retained in this position by the handle 49 coacting with the keeper 53. The shaft 34 is actuated through gear 30 to rotate the blades 59 and since the interval is different between tobacco plants and cotton plants, the two sets of gear teeth 31 and 32 are respectively used to vary the interval of effective operation of the blades 59, that is, the interval of revolutions of the shaft 34 and blades 59. As shown in Figure 5, the arms 57 are flanged as at 60 and the blades 59 are attached to the flanges.

The block 44 is provided with an arm 44a on which is secured an apertured extension 61, forwardly curved arms 62 carrying a covering frame 64—see Figure 6—which is mounted on the extension 61 by means of a transverse apertured bar 63 secured to the extension 61 by means of bolts 61a and to the upper end of the arms 62 by bolts 62a. The frame 64 has a bottom bar 65 secured to the lower end of the arms 62 by bolts 65a which drags and levels the ground between tobacco plants. As shown in Figure 4, the hook 17 on plate 15 is used to go beneath the arms 57 and the end of the shaft 34 to hold the same up when the gear 30 and pinion 33 are not in mesh and my device is not in operation.

When my device is to be used as a cotton chopper, the frame 64 is removed and drags 67 which depend downwardly and curve backwardly as at 68 and have feet 69, are substituted and are secured to the extension 61 in the same manner as the frame 64 by bolts 61a. A roller 70, as shown in Figure 5, is carried between the depending apertured arms 70a on the extension 61. The roller 70 is mounted between the drags 67 on the shaft 70b and is adapted to have rolling contact with the frame 45, as shown in Figure 4 for easy adjustment thereof. A shift lever 71, see Figure 7, is connected to a rod 72 which has a foot pedal 73, shown in Figure 8.

Sleeves 66 and 66a, as shown in Figure 7, are mounted on the shaft 29 so that the sleeve 66 is slidable thereon so that a yoke 71a secured to the sleeve 66 by pivot ears 66b and connected to the lever 71 by a link 71b is slidably operated on the shaft 29 by the actuation of the rod 72 through the foot pedal 73. The sleeve 66a is adapted to rotatably support the rod 72 in the depending apertured arms 66c. The rear end of the rod 72 being supported by the bracket 73a.

The threaded front end 76 of a spring arm 75, as more clearly illustrated in Figures 2 and 9, carrying a cover blade 74 is received in the slot 76a, as shown in Figure 7, of a bracket 76b depending from the sleeve 66 so that on tilting the foot lever 73, the cover blade 74 is moved from the center of travel of the vehicle. By use of the nuts 77 the cover blade 74 can be retained in raised inoperative position or lowered operating position, due to the spring action of the arm 75 which is fastened at its rear end to the bar 21 by bolts 75a.

As shown in Figure 2, the cover blade 74 is elevated and out of the way, being retained in this position by tightening the nuts 77 against the bracket 76b when my device is used either as a tobacco hill leveller with drag bar 65 or as a cotton chopper with the blades 69 at ground level.

In operation, a team or a tractor is hooked to the tongue 13 for pulling the machine and the operator occupies the seat 19 handy to the controls.

5

A simple manipulation of the lever 39 changes the device from a cotton chopper to a tobacco tamper. Operation of the foot pedal 73 shifts the path of movement of the cover blade 74 and the covering frame. The drags and cover blade 5 can be used as desired. The apparatus is simple, sturdy and practical and has no parts likely to get out of order, easily, or become broken or deranged.

From the foregoing description taken in conjunction with the disclosures in the drawing, it is believed the operation and advantages of my invention will be apparent, but it is emphasized that interpretation of its scope should only be conclusive when made in the light of the sub-joined claim. 15

I claim:

In an agricultural machine, the combination of a vehicle frame, a pair of front wheels supporting said frame, a rear axle journaled on said frame, ground wheels secured to said axle for driving the same as the machine traverses the ground, a pair of concentric driving beveled gears secured to said rear axle, a longitudinal shaft, means pivoting said longitudinal shaft on said rear axle, a sleeve slidably mounted on said longitudinal shaft, a driven beveled gear fixed to said sleeve and adapted to mesh with either of said driving beveled gears, clutch means attached to said sleeve for shifting the same on said longitudinal shaft, a supporting plate fixed to the free end of said longitudinal shaft, a plurality of radial arms attached to said supporting plate, a plurality of bearing blocks spaced along and rotatably receiving said longitudinal shaft, curved channel-shaped frames on said vehicle frame 20

6

slidably receiving and guiding said bearing blocks, respectively, each said curved channel-shaped frame having the center of curvature at said rear axle axis whereby said channel-shaped frames are concentrically arranged relative to said rear axle, a rotatable control rod extending lengthwise of said vehicle frame, a collar on said longitudinal shaft adjacent the free end thereof and means connecting said control rod with said collar whereby rotation of said control rod will raise or lower said longitudinal shaft about said rear axle.

MILTON S. BROWN.

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