Dec. 29 1925. 1,567,853

J. B. McKEE

TRACTOR GUIDE ATTACHMENT

Original Filed Sept. 6, 1923

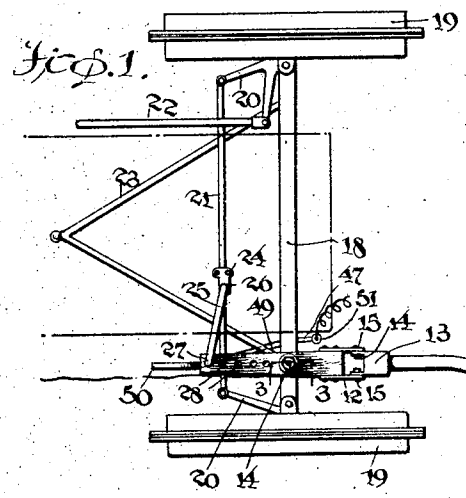


Fig. 1.

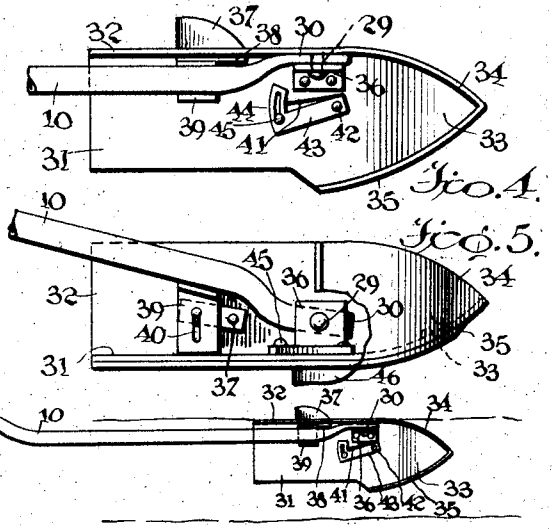


Fig. 4.

Fig. 5.

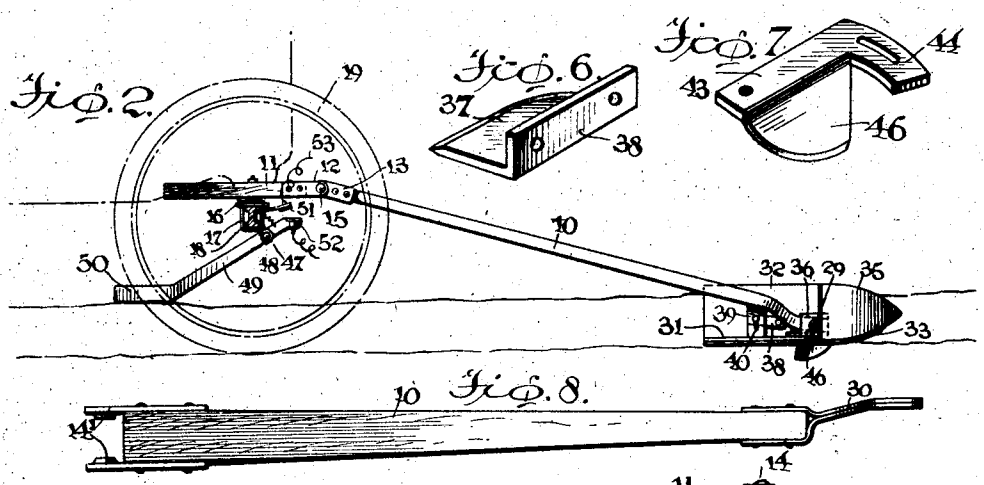


Fig. 2.

Fig. 6.

Fig. 7.

Fig. 8.

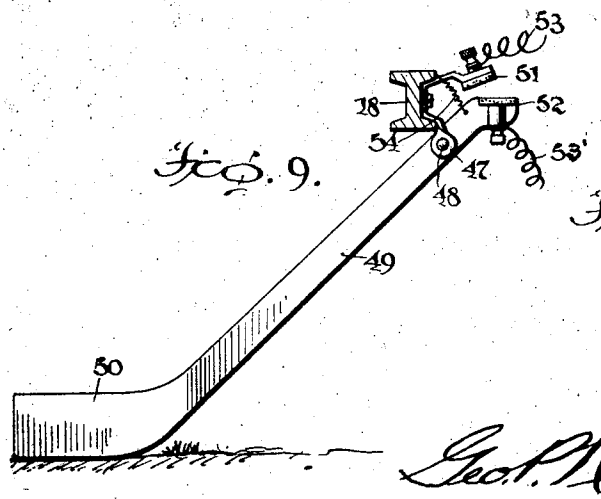


Fig. 9.

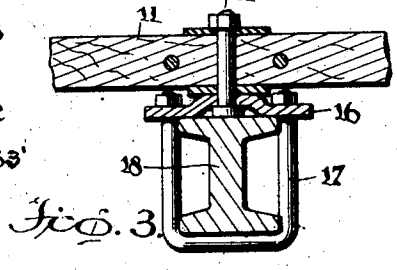


Fig. 3.

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UNITED STATES PATENT OFFICE.

JULE B. McKEE, OF COVINGTON, LOUISIANA, ASSIGNOR OF TWELVE PER CENT TO M. P. PLANCHE, TWELVE PER CENT TO E. J. FREDERICK, AND TWENTY-FOUR PER CENT TO F. J. HEINTZ, ALL OF COVINGTON, LOUISIANA.

TRACTOR GUIDE ATTACHMENT.

Application filed September 6, 1923, Serial No. 661,314. Renewed May 27, 1925.

To all whom it may concern:

Be it known that I, JULE B. McKEE, a citizen of the United States, residing at Covington, in the parish of St. Tammany and State of Louisiana, have invented certain new and useful Improvements in Tractor Guide Attachments, of which the following is a specification.

This invention relates to attachments to a motor driven vehicle when employed as a tractor to operate a plow, and has for one of its objects to provide a simply constructed device arranged to travel in the furrow, preferably the last one formed, and connected to the steering gear of the tractor, and operating to guide the tractor and the plow in forming the next furrow in parallel relation to the previously formed furrow, and so on continuously, thus forming the furrows in spaced parallel relation.

Another object of the invention is to provide a device of this character including a supplemental guiding means adapted to be arranged in electrical connection with the timing and sparking devices of the motor, so that in event of the tractor being removed from its normal or operative position, or failing to follow the furrow, the motor will be automatically disconnected.

Another object of the invention is to provide a device of this character including a guiding shoe having cooperating colter blades operative to hold the shoe in position in the furrow.

With these and other objects in view the invention consists in certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claims, and in the drawings illustrative of the preferred embodiment of the invention—

Figure 1 is a plan view of the improved device, together with the forward axle, the forward bearing wheels, and portions of the steering mechanism of a motor driven vehicle with the improved device applied.

Fig. 2 is a side elevation of the improved device including the parts shown in Fig. 1.

Fig. 3 is an enlarged transverse section on the line 3—3 of Fig 1.

Fig. 4 is an enlarged plan view, and

Fig. 5 is an enlarged side view, of the main guide shoe with a part broken away.

Fig. 6 is an enlarged detached perspective view of the lateral colter member.

Fig. 7 is an enlarged detached perspective view of the vertical colter member.

Fig. 8 is an enlarged plan view of a modified form of the main shoe supporting beam.

Fig. 9 is an enlarged side view, partly in section, of the supplemental guide element whereby the electrical operating devices are automatically short circuited and "cut out" in event of the main guide shoe being removed from its position in the furrow.

The improved device comprises a stock formed in two portions 10 and 11, the portion 11 having cheek plates 12 and the portion 10 having a socket 13 to receive the member 10 and with cheek plates 14, the two sets of cheek plates being united by pivot pins 15. In its perferred form the member 10 is constructed from a section of gas or steam piping, as in Fig. 1 and 2, or of wood or the like as shown in Fig. 8. When constructed as in Fig. 8, the socket 13 and cheek plate extensions 14 will be replaced by longer cheek plates 14'.

By this means the portion 10 of the stock will swing vertically relative to the portion 11, and automatically follow any uneveness in the bottoms of the furrows, and is likewise capable of being turned up out of the way when not in use.

The portion 11 of the stock is coupled by a combined yoke and swivel device 16 and 17 to the forward axle of the motor driven tractor, the axle being represented at 18, the steering wheels at 19, the spindle arms at 20, the spindle connecting rod at 21, the steering gear connecting rod at 22, and the front radius rods at 23.

A clip device 24 is attached to the rod 21 and a coupling rod 25 is connected by its downturned ends 26 and 27 respectively to the clip device 24 and the shorter stock portion 11, the latter having a plurality of apertures represented at 28 to receive the downturned end 27 of the rod 25, to control the "throw" of the rods 21 and 25.

By this means the stock 10—11 is moved simultaneoustly with the movement of the steering connecting rod 22, as will be obvious.

When the member 10 is formed from a section of piping, as in Figs. 1 and 2, the

forward end will be flattened to receive a pivot bolt or rivet 29, and when the construction shown in Fig. 8 is employed the forward end will be provided with a clip device 30 apertured to receive the pivot.

A guide shoe is swingingly coupled to the forward end of the member 10, the shoe being formed of an L-shaped plate with one portion 31 horizontal and the other portion 32 vertical, the part 31 being curved upwardly as at 33 and the part 32 curved laterally as at 34 to meet the curved part 33. A curved vertical portion 35 rises from the curved part 33. By this means the shoe is prevented from "biting" into the soil. The parts 31, 32, 33, 34 and 35 form the guide shoe, and may be pressed from a single sheet of metal, preferably steel.

A clip 36 is attached to the horizontal wall 31 of the shoe to receive the pivot 29, by which means the shoe is swingingly coupled to the forward end of the member 10.

By this means the shoe is flexible and will oscillate vertically to a limited extent upon its pivot 29 and follow the irregularity of the bottom of the furrow.

The portion 32 of the shoe is provided with a colter plate 37 horizontally extending beyond the outer face and cutting into the vertical wall of the furrow, and operating to prevent vertical movement of the shoe while being moved forwardly with the tractor and plows, not shown.

The portion 32 of the shoe is formed with a slightly oblique slit and the colter device 37 is formed to extend through the slit from the inside with the "heel" part bent at a right angle as shown at 38 in Fig. 6, with the bent portion riveted to the portion 32.

An L-shaped stop 39 extends by one leg into the path of the member 10 and the other leg slotted as at 40 to receive a holding bolt, by which the stop may be adjustably coupled to the portion 32.

This stop thus serves to limit the movement of the shoe in one direction relative to the member 10.

Formed in the bottom 31 of the shoe is a V-shaped opening, indicated at 41, and pivoted at 42 to the bottom of the shoe, is a colter plate formed of a horizontal portion 43, a curved slotted portion 44, to receive a clamp bolt 45, and with a vertical portion 46 depending through the opening 41, the depending portion forming a vertically operative colter device, extending below the bottom of the shoe and cutting into the bottom of the furrow.

The slotted portion 44 in coaction with the clamp bolt 45 enables the angle of operation of the colter blade 46 to be adjusted as required, to cause the shoe to "hug" the side of the furrow to a greater or lesser extent, while the obliquely directed lateral blade 37 causes the shoe to closely "hug" the bottom of the furrow, as will be obvious.

When not in use, the forward portion 10 of the stock together with the main guiding shoe is turned over by its joint above the axle 18 and after the first furrow is made the portion 10 with its shoe is turned down with the vertical wall 32 of the shoe against the vertical side of the furrow and the horizontal wall 31 of the shoe upon the bottom of the furrow as indicated in Figs. 1 and 2, with the colter blades embedded in the soil, and thereafter operating, as before described, to prevent vertical and lateral movement of the shoe.

As the tractor moves forwardly, the shoe, being connected to the steering mechanism of the tractor, serves as a guide to enable the operator to form a new furrow in exact parallel relation to the previously formed furrow.

Attached to some stationary part of the vehicle, for instance to the forward axle 18, is a bracket 47, and pivoted at 48 in the bracket is a trip arm 49 enlarged at the lower end to form a trailing shoe 50, the latter adapted to travel normally on the "land" rearwardly of the front axle. The bracket 47 is extended upwardly and forwardly and terminates in an electric contact 51. The member 49 is extended forwardly of the bracket 47 and terminates in an opposing electrical contact 52.

The contacts 51 and 52 are connected by electrical conductors, indicated at 53 and 53', with the magneto and coil box, not shown, and so long as the guide shoe 31—32 is in the furrow and the trailing portion 50 of the bar 49 is in position on the land alongside of the furrow and the tractor moved straight ahead, the contact 52 will be disengaged from the contact 51, and the circuit through the magneto and coil box not interfered with.

If however the tractor is turned from a straight forward direction and the shoe 31—32 thereby withdrawn from its guiding position, and caused to mount the land alongside the furrow, the axle 18 being correspondingly turned toward the land, will swing the bar 49 toward the furrow and cause its terminal 50 to drop into the furrow and close the connection between the contacts 51 and 52 and short circuit the magneto and stop the motor.

A spring, indicated at 54, may be connected between the bar 49 and the bracket 47 if required to supplement the action of the bar 49 and plate 50.

The improved device is simple in construction, can be adapted without material structural change to motor driven vehicles of various forms, and can be constructed of any suitable material and of any size or capacity.

The preferred embodiment of the inven-

tion is disclosed in the drawings and set forth in the specification, but it will be understood that modifications within the scope of the claims may be made in the construction without departing from the principle of the invention or sacrificing any of its advantages.

Having thus described the invention, what is claimed as new is:—

1. The combination with a tractor including the forward axle and steering wheels, and the steering elements, of a guide shoe supported from said axle and adapted to travel in a furrow, an arm swinging from said axle and terminating in a bearing shoe adapted to normally travel on the land adjacent the furrow, and electric contacts adapted to be closed to short circuit the electric control when the bearing shoe drops into the furrow.

2. The combination with a tractor including the forward axle, the forward steering wheels and the steering elements, of a guide shoe coupled to swing vertically and adapted to normally travel in a furrow, coupling means between the guide shoe and the steering elements, a bearing shoe coupled to swing vertically and adapted to normally travel upon the land adjacent to the furrow, a stationary contact associated with said axle, and a movable contact coacting with said bearing shoe and held from engagement with the stationary contact when the bearing shoe is travelling on the land, said bearing shoe being caused to drop by gravity into the furrow when the tractor is turned from a straight forward course and close the contacts to short circuit the electric control.

3. The combination with the forward axle the forward steering wheels and the steering elements of a motor driven vehicle, of an arm directed forwardly of the axle and coupled to swing relative to the same and carrying a guide shoe adapted to run normally in a furrow, an arm directed rearwardly and coupled to swing relative to the axle and carrying a bearing shoe adapted to travel on the land adjacent the furrow, an electrical contact carried by said axle, and an electrical contact carried by the arm of said bearing shoe and adapted to engage the axle carried contact when the tractor is turned from a straight course and the bearing shoe falls into the furrow, to short circuit the electric control.

4. In a device of the class described, an arm adapted to swing forwardly of an axle and carrying a guiding shoe adapted to run in a furrow, an arm adapted to swing rearwardly of the axle and carrying a bearing shoe adapted to travel on the land adjacent to the furrow, a stationary contact adapted to be supported from the axle, and a contact attached to the rearwardly directed arm and engageable with the stationary contact when the axle is turned from a direct course, to permit the bearing shoe to drop into the furrow, to short circuit the electric control.

5. An attachment for a motor driven vehicle comprising an arm adapted to be swingingly coupled to the forward axle of the vehicle and extending forwardly thereof and carrying a guide shoe adapted to run in a furrow, means adapted to couple said forwardly directed arm to the steering gear of the vehicle, an arm adapted to be coupled to swing upon said axle and extending rearwardly of the same and carrying a bearing shoe adapted to travel on the land adjacent the furrow, a stationary contact adapted to be supported from the axle, and a contact attached to the rearwardly extending arm and engageable with the stationary contact when the axle is turned from a direct course, to permit the bearing shoe to drop into the furrow to short circuit the electric control.

6. An attachment of the class described comprising a jointed stock adapted to be swingingly coupled by one part to the forward axle of a motor driven vehicle, a guide shoe formed of a vertical portion and a horizontal portion and swingingly coupled to the other part of the stock, said guide shoe adapted to move in a furrow with one side in the bottom of the furrow and the other side against the vertical wall of the furrow, a colter blade extending laterally from the vertical side of the shoe, a colter blade depending from the bottom of the shoe, and means for adjusting the depending colter blade.

7. An attachment of the class described comprising a jointed stock adapted to be swingingly coupled by one part to the forward axle of a motor driven vehicle, a guide shoe formed of a vertical portion and a horizontal portion and swingingly coupled to the other part of the stock, said guide shoe adapted to move in a furrow with one side in the bottom of the furrow and the other side against the vertical wall of the furrow, and the bottom of the shoe having an opening, a colter blade extending laterally from the vertical side of the shoe, a colter blade pivoted to the bottom of the shoe and including a vertical portion depending through the opening, and means for adjusting said last mentioned colter blade on its pivot to control the angle of movement of the depending portion.

In testimony whereof, I affix my signature hereto.

JULE B. McKEE.