

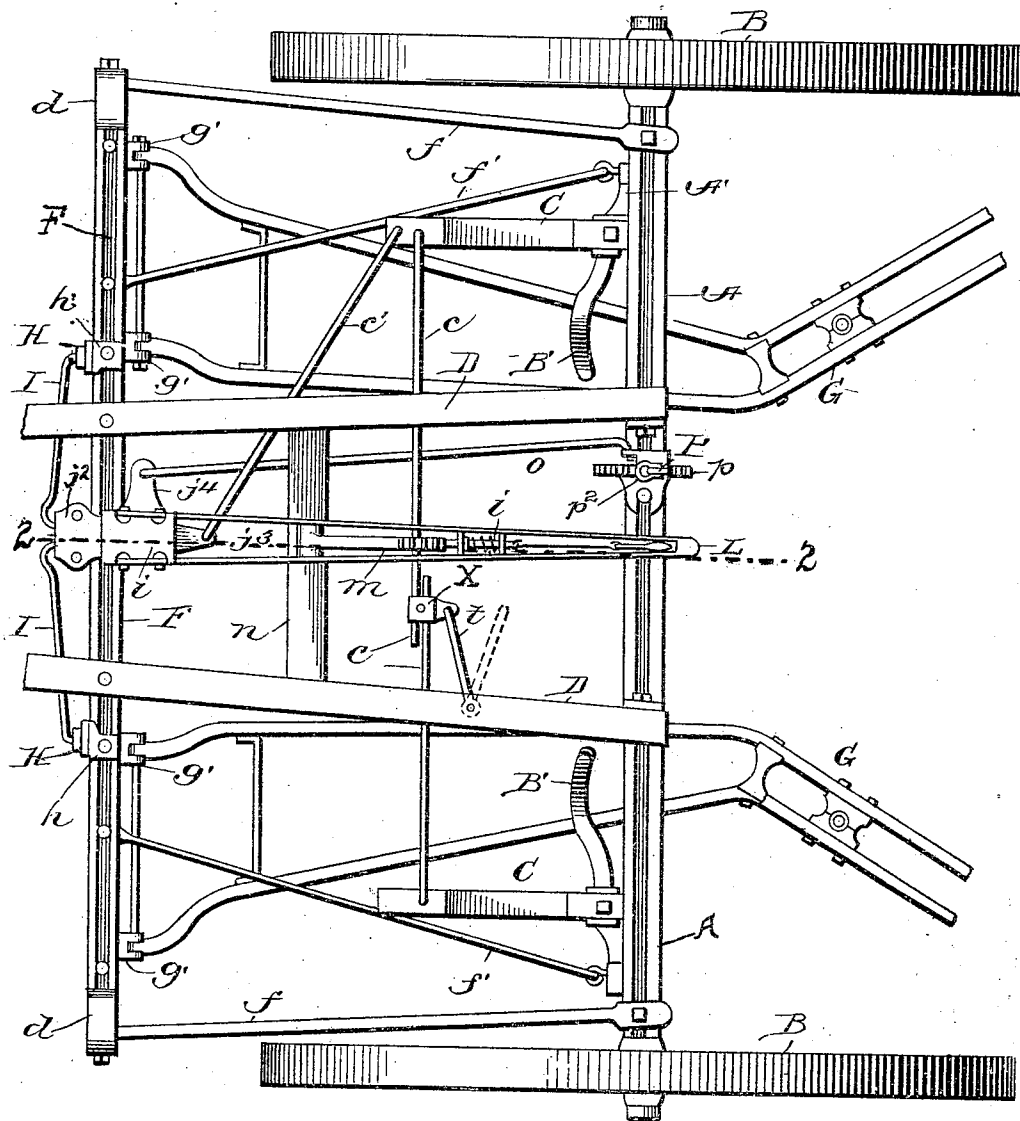
H. W. EISENHART.
PIVOT AXLE CULTIVATOR.
APPLICATION FILED FEB. 19, 1910.

958,609.

Patented May 17, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



Inventor

Henry W. Eisenhart.

Witnesses

M. Fowler
H. Lee Helms

By Mervin P. Siler

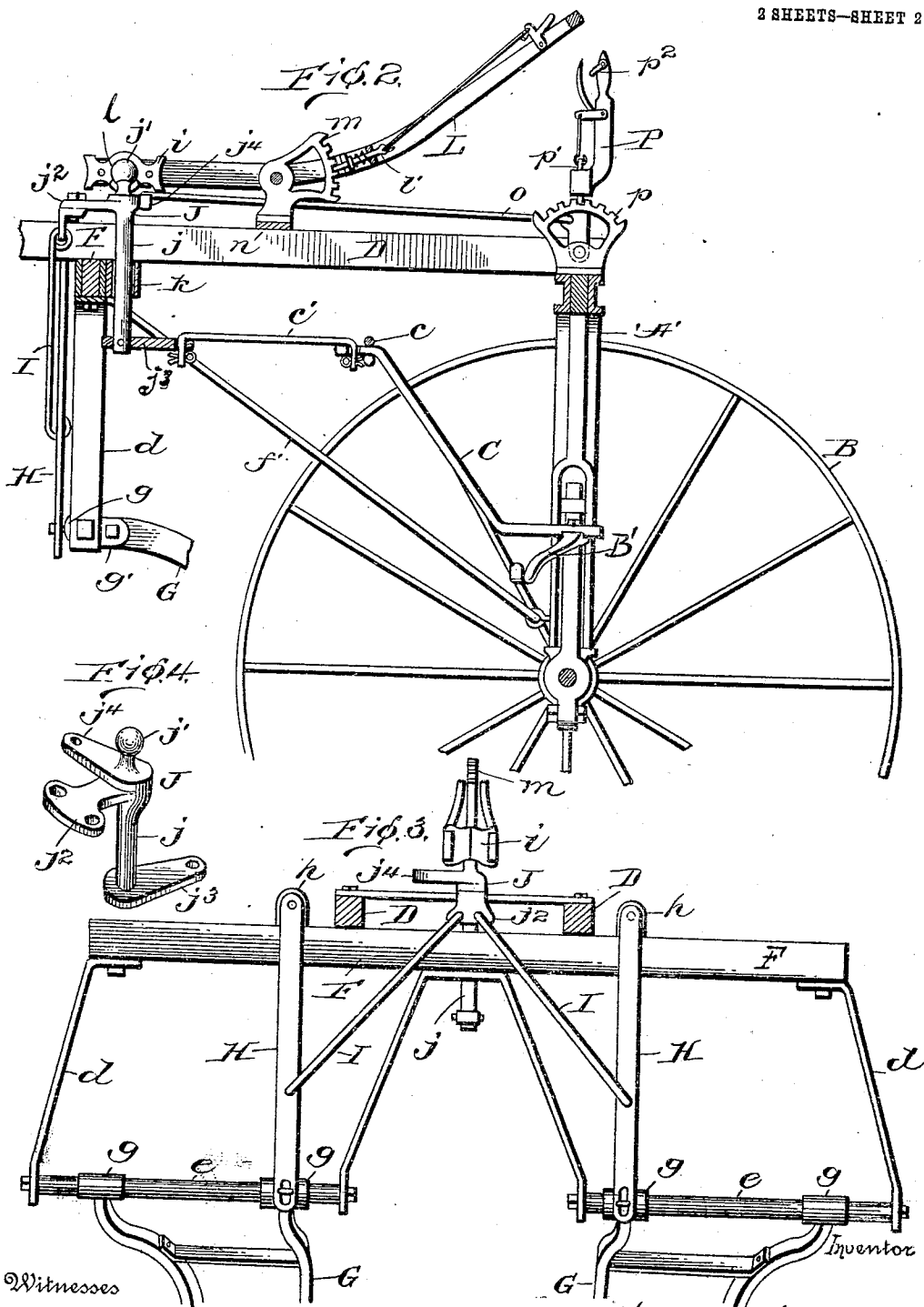
Attorney

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2 SHEETS—SHEET 2.



Witnesses

J. M. Fowler Jr.
H. Lee Helms

Henry H. Eisenhart
By *Manuel D. Parry*
Attorney

UNITED STATES PATENT OFFICE.

HENRY WOLF EISENHART, OF YORK, PENNSYLVANIA, ASSIGNOR TO A. B. FARQUHAR COMPANY, LIMITED, OF YORK, PENNSYLVANIA.

PIVOT-AXLE CULTIVATOR.

958,609.

Specification of Letters Patent.

Patented May 17, 1910.

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To all whom it may concern:

Be it known that I, HENRY W. EISENHART, of York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Pivot-Axle Cultivators, of which the following is a specification.

My invention relates to cultivators known as "pivot-axle" cultivators, and more particularly to that kind of such cultivator in which the drag bars are connected to the wheel-swinging treadle mechanism in such manner as to move bodily from side to side of the machine simultaneously with the swinging of the wheels—the direction of lateral movement depending upon the direction in which the wheels are swung, and that movement being at all times in lines parallel with the longitudinal axis of the vehicle, or in other words, parallel with the line of draft. A pivot-axle cultivator of this general kind is old and public property.

My invention consists of certain improvements having more particular relation to the devices and combinations of devices for affecting and controlling the lateral movement of the drag bars, and for connecting the same with the wheel controlling treadle mechanism, which will first be described in connection with the accompanying drawings forming part of this specification, and will then be more particularly pointed out in the claims.

In said drawings—Figure 1 is a plan view of so much of a cultivator as needed to illustrate my improvements. Fig. 2 is a section of the same on line 2—2 Fig. 1. Fig. 3 is a front elevation of the connections between the drag bars and their operating levers. Fig. 4 is a perspective view of the head piece detached.

A is the arch beam, in the standards A' A' on which are mounted the stems or spindles of the pivot-axles of the wheels B, to turn or swivel in said standards on a vertical axis. To the pivot axles are attached the laterally projecting foot treadles or steering stirrups B'. C are brackets on said steering stirrups, and c are cross rods connecting the same, so that the wheels shall swing in unison—all as usual in this style of cultivator.

D is the divided tongue having its limbs secured to the arch beam.

F is the front cross beam secured to the under side of the divided tongue. From this beam depend the frames to which the front ends of the drag bars are connected. The construction of these frames and of the connections between the same and the drag bars may vary, what is essential being that the drag bars shall be capable of up and down movement upon their front ends as an axis, and also of bodily sliding movement laterally or crosswise of the machine. Each frame in the present instance consists of two vertical arms d rigidly secured at their upper ends to the under side of the cross beam F, and connected at their lower ends by an horizontal cylindrical cross rod e, which extends between, and is secured tightly to, them. The frames and standards are suitably stiffened and braced, as for example by brace rods f f'.

The drag bars G are mounted upon the cylindrical cross rods e. Each of them, for this purpose, is provided at its front with cylindrical bearing sleeves g, which fit on the rods e and can slide bodily thereon in a direction crosswise of the machine without change of angle relatively to the line of draft of the machine. The swiveling movement of the drag bars is obtained in any suitable way—in this instance by jointing them at g' to the sleeves g—this being for the purpose of permitting their gangs to be raised and lowered as desired, they being combined for this purpose with the usual operating latch levers and spring pressure devices, which being well known and forming no part of my invention I have omitted from the drawing.

The sliding movement of the drag bars crosswise of the machine is provided for in order to permit the drag bars to be set nearer together or farther apart from one another, as the necessities of their use may demand, and also to permit both of them together to be shifted bodily from one side to the other of the machine in unison with the swinging of the wheels—both of which features, as I have hereinbefore indicated, are broadly old in this class of machines. The devices which I employ for these purposes are as follows: To brackets h on the main cross beam are pivoted hangers H so as to be capable of swinging laterally or crosswise of the machine. There are two of

these hangers, and each of them is connected at its lower end to the inner sleeve g of its drag bar, by a slot and headed pin connection h' , as indicated clearly in Fig. 3. The hangers H are, by rods or links I , connected to a head piece J , shown separately in Fig. 4. This head piece has a vertical stem j which loosely passes down through a guide eye or sleeve k (Fig. 2), on the cross beam F , in which guide sleeve it can turn on a vertical axis. The head piece is connected to the front end of an operating lever L by a ball and socket joint, the ball j' being on the upper end of the stem and engaging a suitable socket l secured to the front end of the operating lever L . The lever is pivoted to a toothed segment bracket m attached to a cross bar n extending between the limbs of the tongue, and is provided with the usual spring latch l' to engage the toothed segment m . The connecting links I are jointed at their lower ends to their hangers H , and at their upper ends to a crank projection j^2 on the head piece J . Under this arrangement it will be seen that by means of the operating lever L and the connections H and I and head piece J , the drag bars can be drawn closer together or spread farther apart from one another, according to the direction of movement of the lever, and can be locked in their adjusted position by the locking latch and segment of that lever. At the same time by reason of the ball and socket joint between the head piece J and its operating lever, the head piece, while moving up and down with its lever, will have a free swiveling movement independently of the latter. The head piece J in addition to the crank projection j^2 , is provided with two other crank arms j^3, j^4 . One of them j^3 is fixed on the lower end of the stem j , and this arm by a diagonal rod or link c' is detachably connected to one of the stirrup brackets C —in this instance the right hand bracket. The link rod c' has one of its ends formed as a hook end, which detachably engages an eye, in the member with which that end is connected—that member in the present instance being the stirrup bracket C —so that if desired it may be detached from the bracket, thus disconnecting the steering mechanism. So long, however, as the link c' connects the two systems, it will be seen that, as the wheels are swung in one direction or the other, the link c' will force the crank arm j^3 in one direction or the other, according to the swinging direction of the wheels, and this movement of the crank arm will cause a partial rotation of the head piece J in corresponding direction, with the effect of correspondingly swinging the crank projection j^2 , to which the drag bar connections are attached, and this movement of the crank projection j^2 , through the connections H, I , will cause the bodily shifting of the

drag bars on their sliding bearings e cross-wise of the machine, to the right or left according to the direction in which the wheels are swung. The other crank arm j^4 projects from the head piece just below the ball j' . It is connected to a small operating shifting lever P by a rod or link o having hook ends which engage eyes formed in the crank j^4 , and the stem of the lever, respectively. This shifting lever P is pivoted to a toothed segment bracket p mounted on the arch beam and is provided with the usual latch p' to engage the toothed segment. A loop p^2 on the handle end of the lever is provided to slip over the latch handle and hold it in position to keep the latch out of engagement with the segment p , in which event the lever will move freely to respond to the movements of the head piece J due to the steering mechanism. When however the latch of the shifting lever P is in engagement with its segment, then the head piece J will be locked against any swiveling motion; and if the connection between the steering system and the drag bar operating mechanism by the connecting rod c' be maintained, then the wheels will be also locked against swinging. If the connecting rod c' be detached, the steering system will be independent of the drag bar operating mechanism; and the shifting lever P can be used to manually shift the drag bars bodily to the right or left, and to lock them in that shifted position if need be.

At t is shown the hook usually employed to lock the steering system from movement in certain cases—as in going to or returning from work. The hook is attached to one of the limbs of the tongue and is adapted to engage an eye in the central holder X in which the inner overlapping ends of the cross rods c are clamped, as customary in machines of this kind.

The driver's seat has been omitted from the drawing in order to avoid confusion. It, of course, is mounted on the frame of the machine in convenient proximity to the two operating levers.

Having described my improvements and the best way now known to me of carrying the same into effect I state in conclusion that I do not limit myself narrowly to the structural details hereinbefore described and illustrated, since manifestly the same can be varied to some extent without departure from my invention; but

What I claim herein as new and desire to secure by Letters Patent is as follows:

1. The drag bars and their supporting frames on which the drag bars are slidably mounted so as to be movable bodily thereon from side to side of the machine, in combination with pivoted vertical hangers connected to the drag bars, an operating latch lever L and toothed segment therefor, a head piece

connected to said lever by a ball and socket joint, so that while moving up and down with said lever, it can have a swiveling movement on a vertical axis independently thereof, a guide on the machine frame through which the stem of the head piece loosely passes, a crank projection on said head piece, and links I jointed at one end to said projection and at the other end to the said hangers, substantially as and for the purposes hereinbefore set forth.

2. The drag bars and their supporting frames on which the drag bars are slidably mounted so as to be movable from side to side of the machine, the hangers H, and links I in combination with the head piece, the operating lever connected to said head piece by a ball and socket joint, a guide on the machine frame through which the stem of the head piece loosely passes, a crank projection j^3 on the head piece to which the links I are jointed, the pivot axles and their bracketed steering stirrups connected to swing in unison, a crank arm on the head piece, and a connecting rod jointed at one end to the said crank arm and at the other end, to a member of the wheel swinging or steering system,

substantially as and for the purposes hereinbefore set forth.

3. The combination substantially as hereinbefore described of the following elements: the drag bars and their supporting frames in which said drag bars are slidably mounted so as to be movable bodily from side to side of the machine; the hangers H, links I and head piece provided with a crank projection j^2 to which said links are jointed; a guide on the machine through which the stem of the head piece loosely passes; an operating lever having a ball and socket connection with the head piece, and designed to vary the distance between the drag bars; a crank arm j^4 on the head piece; a shifting latch lever and toothed segment therefor mounted on the frame of the machine, and a connecting rod jointed at one end to said shifting lever, and at the other end to said crank arm j^4 , for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY WOLF EISENHART.

Witnesses:

HAROLD A. RUSSELL,
CLARENCE C. FREY.