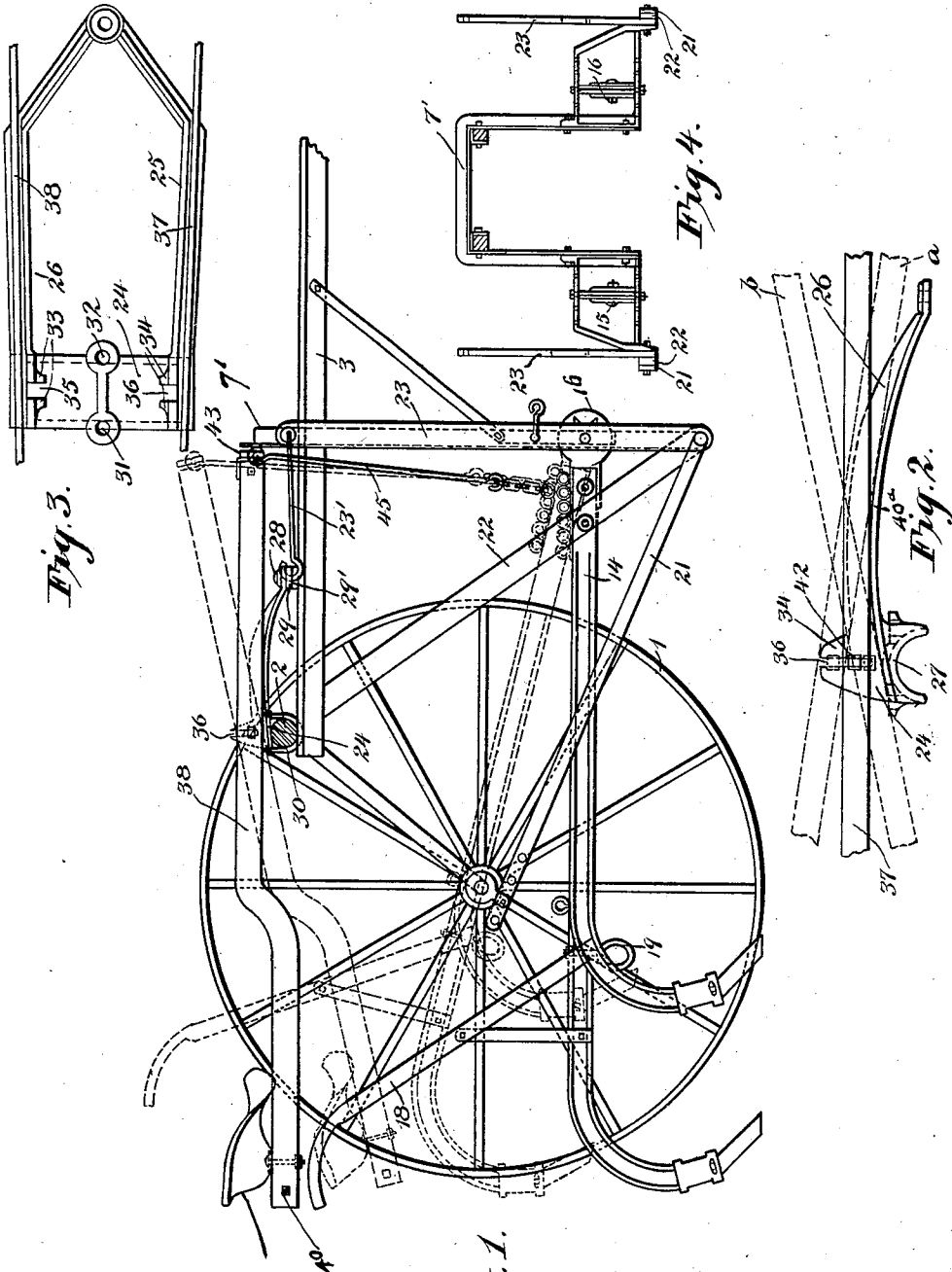


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CULTIVATOR.

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1,017,353.

Patented Feb. 13, 1912.



Witnesses: 4

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Fig. 1.

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UNITED STATES PATENT OFFICE.

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CULTIVATOR.

1,017,353.

Specification of Letters Patent.

Patented Feb. 13, 1912.

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To all whom it may concern:

Be it known that I, FREDERICK C. WARNE, a citizen of the United States of America, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Cultivators, of which the following is a specification.

My invention relates to cultivators and especially to the type of cultivators shown and described in the following Letters Patents: J. McL. Wright, No. 622,096, Mar. 28, 1899, cultivator; J. M. Wright, No. 677,836, July 2, 1901, cultivator; and G. N. Hypse, No. 911,128, Feb. 2, 1909, wheeled cultivator; and embodies the same fundamental principles of construction and operation as the aforesaid patents.

One of the objects of my improvement is to provide means for automatically increasing and decreasing the lifting power or leverage of the seat lever when movement is imparted to it in a vertical direction.

A further object consists in providing a combined seat lever support and draft bar.

It is well known that when the shovels of the cultivator are penetrating the soil and performing the cultivating operation, on account of the friction of the soil and shovels, increased leverage or lifting power is desirable to raise the shovels from the soil, and when they are removed from the soil it is desirable to have the leverage or lifting power decreased to such an extent that the weight of the rider will substantially balance the beams and their connections.

The primary object of my improvement, therefore, consists in mounting the seat lever upon the cultivator in such a manner as to permit its fulcrum or axis to change automatically for the purpose of providing for increased or decreased leverage or lifting power.

I attain these and other objects by the mechanism illustrated in the accompanying drawing in which—

Figure 1 is a side elevation of a wheeled cultivator showing the application of my improvement thereto illustrating the shovels on a plane preparatory to entering the ground, in full lines, and the shovels removed from the ground, in dotted lines. Fig. 2 is an enlarged side view of the curved supporting frame showing a part of one member of the seat lever resting thereon in full lines and

the extreme positions it assumes when it is moved in a vertical direction. It also indicates how the fulcrum of the seat lever is changed as it rocks or oscillates upon the curved portion of the frame. Fig. 3 is a plan view of the curved supporting frame. It also shows part of the members comprising the seat lever resting on the curved portion of the supporting frame. Fig. 4 is a front view of the yoke, pivotal connection of the beams and hitching bars.

Referring to the drawings, reference numeral 1 designates supporting wheels mounted upon the ends of a centrally offset axle 2. Frame bars 3 and 4 are connected by clamps or staples 6 and 7 to the offset axle 2 and extend forward beyond the front of the frame work and are securely bolted to the yoke 7' by the bolts 8 and 9. A pole 10 is interposed between the ends 3 and 4 of the pole frame and is held in place by the bolts 11 and 12.

The beams 13 and 14 are pivoted for horizontal and vertical movement to the yoke preferably in the manner shown in the drawings by the universal pivotal connections 15 and 16. Handles 17 and 18 are provided to permit of the manipulation of the beams in either direction by the operator. Attention, however, is called to the fact that the beams are usually operated by the rider by placing his feet in the stirrups 19 and 20 thus leaving his hands free to drive.

Reference numeral 21 represents an adjusting bar for changing the inclination of the axle 2 and 22 represents a frame bar for bracing the cultivator.

Reference numeral 23 designates one of the upright hitch bars and 23' a link connecting the equalizer bar 29 and hitch bar 23.

The above describes, briefly, the construction of the type of cultivator to which my improvement is applied and for a more specific description of the parts of the cultivator and the functions they perform, reference is made to the patents heretofore referred to in the within specification.

I will now describe the construction and operation of the present invention and its application to the type of cultivator shown and described.

I provide a supporting frame 24 with curved side members 25 and 26 formed angular in cross-section. One end of the frame is formed substantially V shaped as shown in

Fig. 3 and the rear end is provided with a semi-circular bearing portion 27 adapted to fit and rest upon the offset axle 2. The V shaped end of the supporting frame is connected to the bolt 28 which also passes through an equalizing bar 29 and a supporting bar 29'. The supporting frame 24 is securely retained in place upon the off-set axle 2 by the clip 30 which passes through the apertures 31 and 32 provided on the supporting frame 24. Upstanding flanges 33 and 34 are formed on the supporting frame 24 and are provided with parallel slots 35 and 36.

A seat lever comprising members 37 and 38 which are spaced apart is provided and retained in place by the bracket 39 and bolt 40 and rests upon the parts 40^a of the angular bracket or supporting frame 40. A seat 41 is adjustably mounted upon the rear end of the members 37 and 38 of the seat lever. The members 37 and 38 comprising the seat lever are provided with suitable apertures (not shown) to receive a bolt 42 which bridges the space between the members 37 and 38 and engages the parallel slots 35 and 36 of the flanges 33 and 34 thereby movably mounting said seat lever upon the supporting frame 24. The bolt 42 is adapted to engage with the slots 35 and 36 and is movable up and down within said slots as shown in Fig. 2 when movement is imparted to the seat lever. A balancing or equalizing bar 43 is pivotally connected to the bracket 39 by the bolt 44. The link and chain connections 45 are connected to the bracket 46 which is secured to the forward end of each beam and to each end of the bar 43 as more specifically shown and described in the Letters Patent herein referred to.

It will be observed that the curved supporting frame 24 is utilized as a draft bar for the equalizing bar 43 of the hitching device and also for supporting the seat lever members 37 and 39.

The operation of my device is as follows: The bolt 42 which is secured to the members 37 and 38 is inserted in the slots 35 and 36 formed parallel with each other on the curved supporting frame, and is free to move up and down within said slots as shown in Fig. 2 when movement is imparted to the seat lever. It will be observed that the seat lever comprising the members 37 and 38 has a variable lifting capacity or leverage according to the position or point that said members are supported on the frame. When the operator of the cultivator is in the seat, and the seat lever, comprising the members 37 and 38, is forced to rock or oscillate upon the curved portion of the supporting frame as shown in Fig. 2, the fulcrum is automatically changed thereby corresponding to the movement of the seat lever in upward or downward direction. If,

for instance, the operator presses downward on the stirrups 19 and 20, the fulcrum of the seat-lever members 37 and 38 is gradually changed to assume the position shown in dotted lines in Fig. 2 by reference letter *a*, automatically increasing the lifting power of the seat lever in proportion to the downward movement. When the operator raises the beams, the lifting power of the members 37 and 38 is decreased in proportion to their upward movement until they reach the highest point of their movement in an upward direction indicated by reference letter *b* at which point the beams, seat lever and their connections practically balance each other and the rider.

It will be observed that the bolt 42 moves up and down freely in the slots 35 and 36 to accommodate itself to the changes of the fulcrum of the seat lever members. The function of the bolt 42 is for the purpose only of retaining the seat lever in place and at no time does it perform the functions of an axis or fulcrum for the seat lever.

It will be observed that the leverage of the seat lever is increased or decreased automatically in proportion to its movement and the movement of the beams in a downward or upward direction, the changing of the fulcrum being always within control of the operator.

Attention is called to the fact that by means of mounting the lever on an arched or curved supporting frame, as described, and connecting it thereto in such a manner as to permit the fulcrum of the seat lever to be automatically changed at the will of the operator, that greater efficiency in the use of the cultivator and better balancing results are obtained because increased leverage can be obtained to remove the shovels from the soil when it is most needed and the leverage can be gradually and automatically decreased as the shovels are moved in an upward direction so as to permit of the seat lever, its connections and the rider substantially balancing the cultivator beams when they are removed from the soil and suspended from the cultivator.

Having fully described my invention, what I claim and desire to secure by Letters Patent is:

1. In a cultivator, the combination of a frame, plow beams having pivotal connections at their forward ends with the frame, a seat lever mounted upon the frame and carrying a seat at its rear end, connections from the front end of the seat lever to the plow-beams, a curved supporting frame adapted to movably support and provide an automatically adjustable fulcrum for said seat lever to provide for variable leverage.

2. In a cultivator, the combination with a frame, plow beams having a pivotal connection at their forward ends with the

frame, connections from the pivot end of the seat lever to the plow beams, a curved supporting frame, a seat lever movably mounted on said supporting frame whereby increased or decreased leverage on the plow beams is obtained automatically.

3. In a cultivator, the combination with a frame, plow beams having pivotal connections at their forward ends with the frame, connections from the front end of the seat lever to the plow beams, a curved supporting frame mounted on the frame of the cultivator, a seat lever mounted on said supporting frame the fulcrum of which is automatically changed when movement is imparted to said seat lever and means to prevent the displacement of said seat lever as described and set forth.

4. In a cultivator, the combination of a frame and plow beams having pivotal connections at their forward ends, connections from the front end of the seat lever to the plow beams, with said frame, a curved supporting frame mounted on said cultivator

frame, a seat lever, means to removably secure said seat lever to said supporting frame whereby the fulcrum of said seat lever is automatically changed to increase or decrease the leverage of said seat lever while at work.

5. In a cultivator, the combination of a frame and a pole frame connected thereto, plow beams having their forward ends pivotally connected to said frame, a combined curved supporting frame and draft bar, a seat lever mounted on said supporting frame, connections between said seat lever and the forward ends of the beams and means to movably connect said seat lever to the curved supporting frame whereby the fulcrum of the seat lever is automatically changed at the will of the operator.

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

FREDERICK C. WARNE.

Witnesses:

JOHN H. COSS,

ANDRUS B. McLEAN.