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C. J. KALKHURST.

SEEDER.

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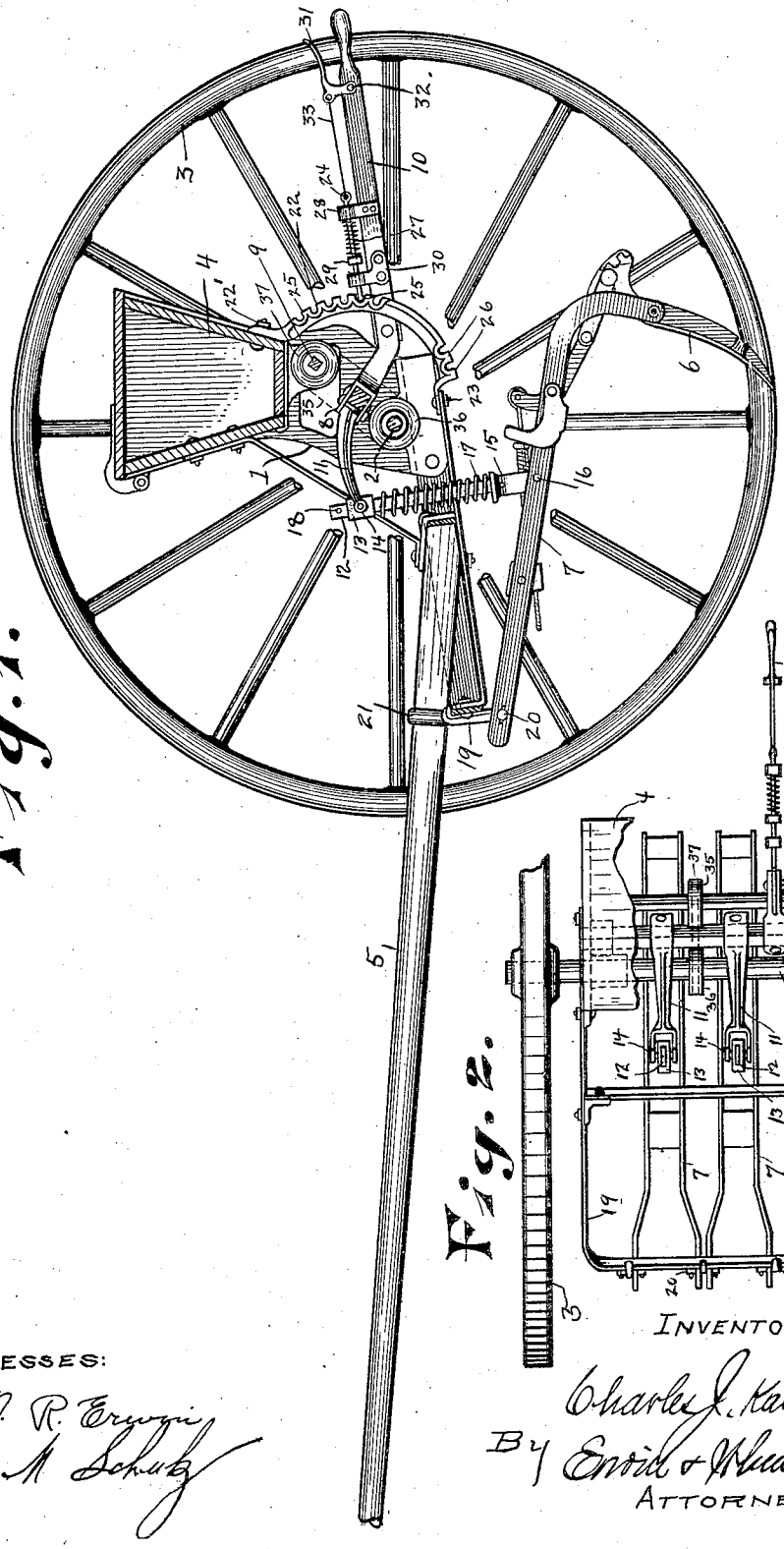


Fig. 1.

Fig. 2.

WITNESSES:

O. R. Erwin

M. M. Schultz

INVENTOR

Charles J. Kalkhurst

By Enoch & Wheeler

ATTORNEYS.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES J. KALKHURST, OF BEAVER DAM, WISCONSIN.

SEEDER.

No. 881,131. Specification of Letters Patent. Patented March 10, 1908.

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To all whom it may concern:

Be it known that I, CHARLES J. KALKHURST, a citizen of the United States, residing at Beaver Dam, county of Dodge and State of Wisconsin, have invented new and useful Improvements in Seeders, of which the following is a specification.

The object of my invention is to so construct and arrange the several coöperating parts of a cultivator or seeder that the weight of the teeth, draw bars and other mechanism connected with the teeth when raised and unsupported by the ground will be suspended at such a point from the frame of the machine in rear of the wheel axle that they will partially counterbalance the weight of the tongue, whereby the team will be relieved from the downward pull upon their necks which would otherwise be caused by the weight of such parts as they have been heretofore connected with the frame of seeders and cultivators.

A further object of my invention is to so construct and arrange the several parts referred to that when the operating lever, by which the teeth are raised and lowered, is so set as to cause the teeth to penetrate a hard surface, the rearward pull of the teeth as they penetrate such surface, which would otherwise have a tendency to press upwardly upon the tongue, will, owing to the fact that their supporting shaft is located upwardly and rearwardly of the wheel axle, have a tendency to balance the machine upon the axle, while by thus locating said tooth supporting shaft above and in rear of the wheel axle as shown, the required space is provided for the movement of such lever and the other coöperating parts.

My invention relates, as it will be understood, to wheel supported seeders and cultivators and it pertains more especially among other things to the peculiar construction and relative arrangement of the wheel axle, the tooth supporting shaft and the revoluble feed shaft, said shafts being arranged, as shown, parallel with and slightly above and in rear of the wheel axle.

My invention also pertains to the arrangement of the hand actuating lever affixed at its front end to said tooth supported shaft, a plurality of tooth supporting levers respectively connected at their rear ends to the opposite side of said tooth supporting shaft and at their front ends through a link with the draw bars of the teeth, whereby all of the teeth may be simultaneously raised, lowered and adjusted by raising, lowering and adjusting said operating lever. The relative location of said teeth supporting shaft to the wheel axle and the operating lever and lever retaining mechanism being such that the weight of the teeth when raised will be brought to bear upon said tooth supporting shaft in the rear of the wheel axle, whereby such weight will have a tendency to balance the machine upon the wheel axle and the horses will be relieved of the downward or upward pressure upon their necks to which they would otherwise be subjected. Also whereby the teeth of the machine may be so set as to penetrate the hard surface without materially affecting the action of the tongue, the relative arrangement of such coöperating parts being such that when the teeth are so set as to penetrate the soil, they will be forced downward by the weight of the machine above them coöperating with the forward pull of the team, and the act of the teeth when penetrating a hard surface will not as heretofore have a tendency to draw downwardly or upwardly upon the front end of the tongue.

The construction of my invention is further explained by reference to the accompanying drawings in which,

Figure 1 is a vertical section, and Fig. 2 is a detail plan with part of the seed box removed.

Like parts are identified by the same reference figures in both views.

That part of the seeder shown comprising the frame 1, frame supporting axle 2, axle supporting wheels 3, seed box 4, tongue 5, cultivator teeth 6, tooth supporting shank or drag bar 7, together with the trip mechanism connected with said teeth and shank are all substantially of the ordinary construction.

My present invention consists more especially in the peculiar construction and arrangement of the tooth supporting shaft 8 located above and slightly in rear of the wheel axle 2 and in the arrangement of the feed shaft 9 located slightly above and in rear of the tooth supporting shaft 8, whereby a space is left between said axle and feed shaft for the tooth supporting shaft and for connecting the operating lever 10 and tooth supporting levers 11 with said shaft 8, and for the free movement of said levers 10 and 11 as the teeth are raised, lowered and adjusted, and also more particularly whereby the

downward pull upon said shaft 8 is brought in rear of the wheel axle and thereby has a tendency, as stated, to counteract the downward pull on the opposite side of the wheel axle which would cause the tongue 5 to bear unduly upon the necks of the horses. The several shanks 7 are connected with the several levers 11 of the series by the links 12, sliding collars 13, pivotal bolts or trunnions 14, stationary collars 15 and pivotal bolts 16. The pivotal bolts or trunnions 14 are rigidly affixed at their inner ends to the sliding collars 13 and are loosely fitted at their outer ends to the bifurcated ends of the levers 11.

17 is a spiral spring which is interposed between the stationary collar 15 and the sliding collar 13 and serves to communicate a yieldingly downward pressure to the teeth from the levers 11 when the operating lever 10 is raised.

18 is a stop which limits the upward movement of the collar 13 and serves to communicate motion from the lever 11 to the link 12 as the teeth are being raised. The front ends of the several shanks of the series 7 are pivotally connected with the front end of the frame 19 by the transversely arranged rod 20 when said frame is connected with the tongue 5 by the clamping member 21.

22 is a semi-circular ratchet bar which is connected at its upper end with the feed box 4 by the bolt 22′ and at its lower end with the frame of the machine by the bolt 23. The operating lever 10 is provided with an ordinary reciprocating pawl or locking member 24 by which the lever may be secured at any desired point of adjustment, said locking member 24 being adapted to engage in the notches between the several teeth of the series 25 or in the notches of the lower series of the teeth 26.

27 is a spiral spring which is interposed between the pawl retaining bracket 28 and the nut 29 carried by the pawl and serves to hold said pawl in engagement with the teeth, the inner end of said pawl being held in place by the bracket 30.

31 is an operating handle which is pivotally supported from the lever 10 on the trunnions 32 and is connected with the pawl by a rod 33. Thus it will be obvious that when it is desired to force the teeth downward, as may be necessary to cause them to penetrate a hard surface, the lever 10 is raised and locked at any desired point of adjustment by the pawl 24 which engages between the teeth of the series 25. When the lever 10 has been thus raised and adjusted it will be obvious that the weight of the machine acting through the spiral spring 17 will be caused to yieldingly bear upon the series of toothed shanks 7, whereby the teeth will be forced into the soil a greater or less depth according to the adjustment of the lever 10. It will now be understood that as the cultivator is being drawn forwardly with the teeth 6 in contact with the soil an upward pressure will be communicated from the shanks 7 through the spindles 17, sleeves 13, links 12 and levers 11 to the tooth supporting shaft 8 upon the rear side of the wheel axle, and that owing to the fact that the tooth supporting shaft 8 is located upon the rear side of the wheel axle, such upward pressure will have a tendency to balance the weight of the machine upon the wheel axle, whereby the horses will be relieved from the upward or downward pull upon their necks. It will also be obvious that when the series of teeth 6 are raised so as to be unsupported by the ground and are retained in their raised position by the engagement of the pawl 24 between the lower series of teeth 26, the weight of said teeth-supporting shanks and other mechanism will all be brought to bear upon said shaft 8, when, owing to the fact that said shaft is located, as stated, rearwardly of the center of said wheel axle, the weight of said teeth and other parts will have a tendency to balance the weight of the tongue and the horses will be relieved from the load which would otherwise have a downward pull upon their necks.

Attention is further called to the fact that by locking the tooth supporting shaft between and in line with the wheel axle and feed shaft the sprocket chain 35 indicated by dotted lines is free to pass from the pulley 36 of the wheel axle to the pulley 37 of the feed shaft around said tooth supporting shaft without contact therewith.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is,

1. In a device of the described class the combination with the wheel supported frame of a wheel axle revolubly supported at its respective ends in the ends of said frame, a tooth supporting shaft located on a higher plane slightly in rear of said wheel axle, a rearwardly extending operating lever rigidly fixed at its front end to said shaft, a plurality of forwardly extending levers rigidly affixed at their rear end to said shaft, means for pivotally connecting the front ends of said levers with the draw bars of the cultivator teeth and means for locking the operating lever at any desired point of adjustment relatively to the shaft and axle supporting frame, the relative position of said tooth supporting shaft to said wheel axle being such that the center of gravity of the teeth and draw bars connected therewith when raised will be brought in rear of the wheel axle.

2. In a device of the described class the combination with the wheel supported frame, of a wheel axle revolubly supported at its respective ends in the ends of said frame, a tooth supporting shaft located on a higher plane slightly in rear of said wheel axle, a feed shaft located on a higher plane, and

slightly in rear of said tooth supporting shaft, said shafts and wheel axle being substantially in line with each other, whereby the driving chain of the feed shaft is free to pass from the pulley of the wheel axle to the pulley of the wheel shaft around and free from contact with the tooth supporting shaft, a rearwardly extending operating lever rigidly affixed at its front end to said tooth supporting shaft, a plurality of forwardly extending levers rigidly affixed at their rear ends to the opposite side of said tooth supporting shaft, means for pivotally connecting the front ends of all of said forwardly extending levers with the draw bars of the cultivator teeth, means for locking the operating lever at any desired point of adjustment, whereby said cultivator teeth may be either supported free from contact with the ground or may be forced yieldingly against the same, the relative position of said tooth supporting shaft to the wheel axle being such that the gravity of the teeth and draw bars when elevated will be brought to bear in rear of said wheel axle, while the resistance of the teeth when forced into the ground will bear upwardly upon the tooth supporting shaft and have a tendency to balance the machine upon the wheel axle, all substantially as and for the purpose specified.

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

CHARLES J. KALKHURST.

Witnesses:

JAS. B. ERVIN,

M. M. SCHULZ.