No. 693,474. Patented Feb. 18, 1902.

A. M. WESTON.

LISTER CULTIVATOR.

(Application filed May 2, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

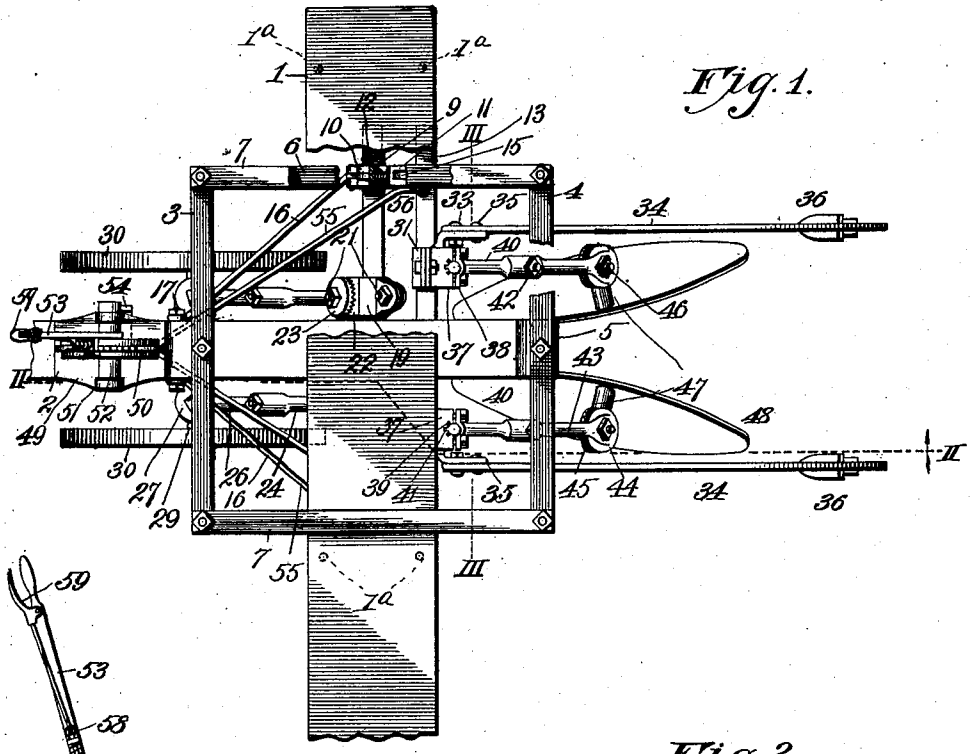
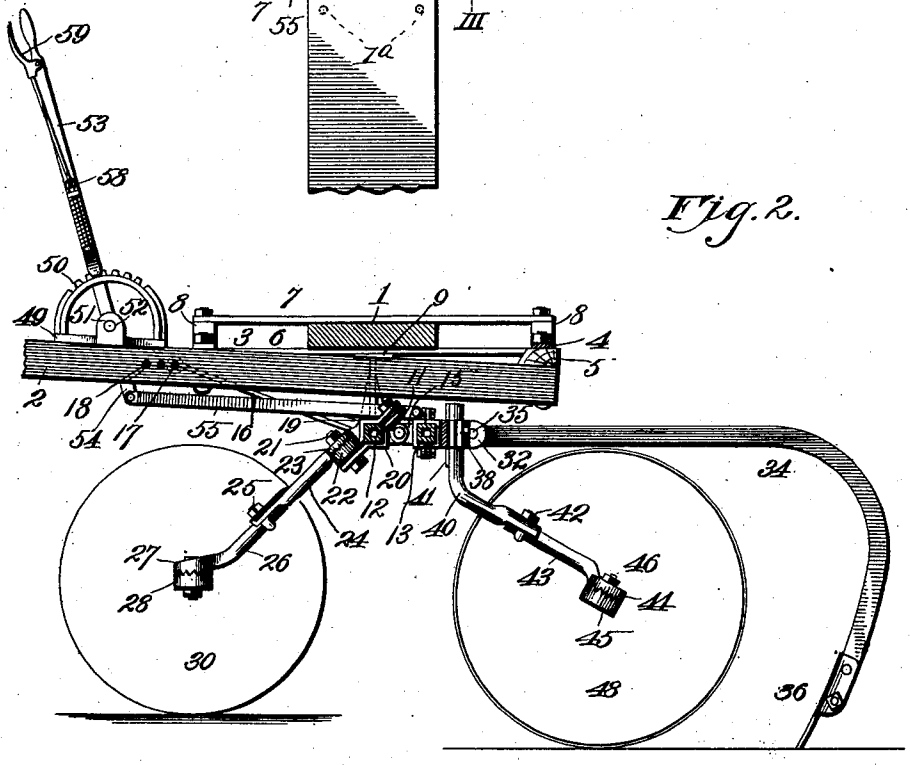


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

Fig. 3.

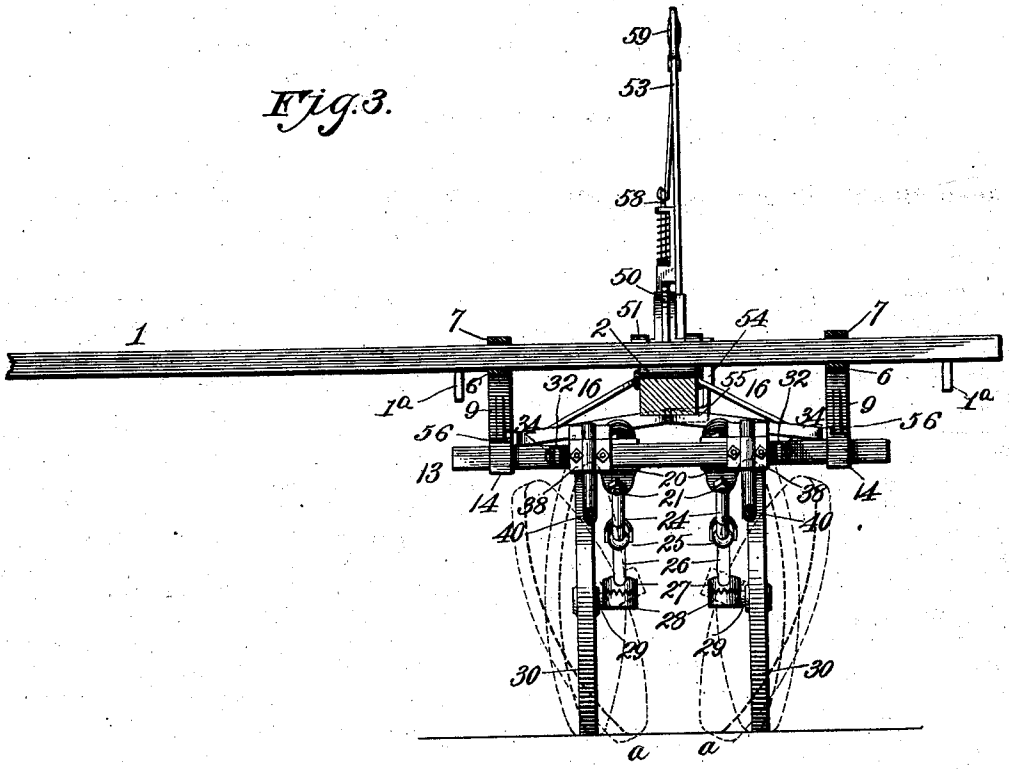


Fig. 4.

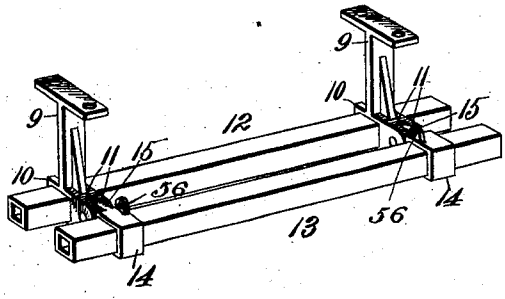
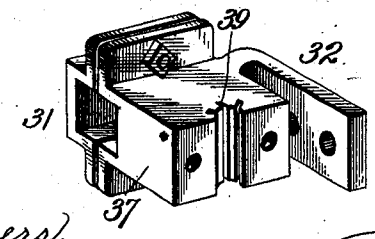


Fig. 5.



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UNITED STATES PATENT OFFICE.

AUSTIN M. WESTON, OF KANSAS CITY, MISSOURI.

LISTER-CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 693,474, dated February 18, 1902.

Application filed May 2, 1901. Serial No. 58,435. (No model.)

To all whom it may concern:

Be it known that I, AUSTIN M. WESTON, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Lister-Cultivators, of which the following is a specification.

My invention relates to lister-cultivators; and my object is to produce a machine of this character wherein the cultivating appliances may be raised without corresponding movement of the framework, all danger of twisting the supporting-bar or bending the beams is eliminated when the disks drop in crossing a dead-furrow or ditch, the carrying-wheels and the disks may be adjusted in or out without removal from the supporting-bars, and the carrying-wheels can be so adjusted as to maintain the proper relation with the corn.

With this general object in view the invention consists in certain novel and peculiar features of construction and combinations of parts, as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 is a top plan view, partly broken away, of one side of a lister-cultivator embodying my invention. Fig. 2 is a vertical section taken on the line II II of Fig. 1. Fig. 3 is a vertical section taken on the line III III of Fig. 1. Fig. 4 is a detail perspective view of the stationary bar which is suspended from the framework and carries the supporting-wheels, said figure also showing the supporting-bar for the cultivating appliances, said bar being hinged to the first-named bar. Fig. 5 is a perspective view of one of the adjustable sleeve-boxings for the cultivating appliances. Figs. 6 and 7 are enlarged longitudinal and cross sections, respectively, showing the joint between rods 24 26 and 40 43.

Referring to the drawings, where like reference-numerals designate corresponding parts, 1 designates the transverse platform or board whereon is mounted the seat. (Not shown.) Also mounted upon said platform near each end is a mechanism constructed as follows, only one being shown and described in this connection: 2 designates a tongue extending longitudinally and underlying said platform. 3 and 4 designate transverse front and rear bars extending parallel by preference and bolted centrally to said tongue, a block 5 being interposed between the rear bar and the tongue in order that the latter shall extend upwardly and forwardly at a slight angle and be held out of contact with said platform.

6 designates side bars underlying the platform and connecting the ends of bars 3 and 4, and 7 similar bars arranged above the platform and also secured to the ends of bars 3 and 4, spacing-blocks 8 being interposed between said bars 6 and 7 and bars 3 and 4 in order to maintain bars 6 and 7 parallel and permit the frame of which they form a part to slide freely and turn upon the platform, the usual pins 1^a depending from platform 1 outward of frame-bars 6, eliminating any possibility of the frame sliding entirely clear of the platform. 9 designates hangers depending rigidly from bars 6 of said slotted frame and provided with rectangular sleeves 10 at their lower ends having rearwardly-projecting lugs 11, said sleeves engaging the transverse tubular bar 12. 13 designates a similar and parallel bar mounted in rectangular sleeves 14, provided with forwardly-projecting lugs 15, fitting between and having a hinged connection with lugs 11, in order that said bar may be raised and lowered for a purpose which hereinafter appears, and in order that the frame shall be strong and rigid the forwardly-converging braces 16 are secured at their rear ends to sleeves 10 and at their front ends to a bolt 17, extending transversely through the tongue, said bolt being adapted to engage one of a series of holes 18 in the tongue in order that the parallelism of the tongue with the wheels may be insured for a purpose which hereinafter appears.

A pair of rectangular sleeves adjustably mounted on bar 12 at opposite sides of and equidistant from the tongue are each composed of two sections 19 20, clamped together by bolts 21, which when loosened permit said sectional sleeves to be adjusted upon the bar, as hereinbefore mentioned. One member of each sleeve, preferably the upper member, terminates forward of the bar in a rough-faced enlargement or rosette 22, and

engaging the same is a similar rosette 23, said parts being clamped together by one of the bolts 21, hereinbefore referred to, the arrangement being such that when said bolt is loosened the rosette 23 can be adjusted so that its arm 24 shall extend downwardly and forwardly at a suitable angle, may occupy a vertical plane parallel with the tongue, or extend obliquely inward or outward of such plane. The lower end of arm 24 is of semicylindrical form and carries a clamping-eyebolt 25, through which the upper end of arm 26 extends and may be longitudinally or rotatably adjusted, the clamping-bolt being tightened to hold said arm rigidly in the semicylindrical portion of arm 24. Arm 26 terminates in a rosette 27, engaging and bolted to a similar rosette 28, provided with an outwardly-projecting arm 29, on which the carrying-wheel 30 is journaled in any suitable or preferred manner.

By the adjustment of rosette 23 on rosette 22 it is obvious that the distance between wheels 30 may be varied and that, irrespective of the distance between them, they may be maintained in a parallel relation by the proper adjustment of rosette 28 on rosette 27. It is also obvious that by rotating or turning arms 26 in the eyebolts 25 the wheels may be maintained in a vertical position or may be caused to assume an oblique position, as shown by dotted lines *a* in Fig. 3. The advantage of having the wheels in this position is pointed out in the description of the operation of the machine.

31 designates a pair of rectangular sleeves mounted adjustably upon tubular bar 13 and provided rearward of said bar with rearwardly-projecting arms 32, to which are secured by bolts 33 the plow-beams 34. These beams are further connected to said arms by means of breakable pins 35 and carry at their lower rear ends, in the usual or any preferred manner, the usual bull-tongued shovels 36.

The rear portions 37 of sleeves 31, in conjunction with caps 38, bolted thereto, form a journal-bearing for the vertical portion of the angle-arms 40, said arms being provided with longitudinal ribs 41 for engagement with one of the radial grooves 39 of the bearing in order that said angle-arms shall extend in a vertical plane parallel with the tongue or shall project inward or outward thereof. The lower ends of said angle-arms 40 carry eyebolts 42, wherein are adjustably mounted rods 43 in the manner described with relation to arms 24 and 26, said rods 43 being provided at their rear ends with rosettes 44, engaging similar rosettes 45, bolted thereto, as at 46, and provided with inwardly-projecting spindles 47, whereon the cultivating-disks 48 are journaled in the usual or any preferred manner. By adjusting arms 40, journaled in said bearings, the depth of cut may be varied. By turning said arm in said bearing and securing it therein by the engagement of the ribs with the proper grooves, as above described, the disks can be caused to assume varying distances from each other. By adjusting arms 43 in the eyebolts 42 the disks can be thrown out of the vertical plane in either direction, and by adjusting rosettes 45 upon rosettes 44 the relation between the disks can be readily varied.

49 designates a plate mounted on the tongue forward of the slotted frame and provided with a notched sector 50 and concentric lugs 51. Journaled in said lugs is a transverse shaft 52, upon which is mounted a lever 53 and an angular crank-arm 54, the latter forming practically a continuation of the lever and underlying the tongue. This extension or angular crank-arm is connected by links 55 with lugs 56 of stationary sleeves 14, hereinbefore described, mounted upon tubular bar 13 outward of sleeves 31, in order that when lever 53 is manipulated it shall cause hinge-bar 13 to swing upwardly or downwardly, and consequently raise or lower the cultivating appliances, the lever being provided with the usual spring-actuated dog 58 for engaging the sector and with a grip-lever 59 for withdrawing said dog from engagement when desired.

In the practical operation of this machine the wheels 30 travel in the furrow at opposite sides of the young plants, the disks following in the wake of the wheels and the first time over the ground throwing the earth outward, what little earth there is needed being supplied by the shovels. In this first cultivation of the plants the wheels and cultivating appliances are closer together than they are in subsequent operations, and frequently, particularly with young and fractious horses, more or less corn is destroyed by one horse or the other getting into the furrow and by turning the tongue obliquely deflecting the machine from its path and causing it to run over the corn, this trouble being more liable to occur where the relation between the tongue and the wheels is variable. To guard almost absolutely against this trouble, particularly in the first cultivating operation, I have provided the adjustment described, whereby I am enabled to not only cause the wheels to converge inwardly, and therefore have their front edges more remote from the sides of the furrow than their rear edges, but also to assume an angle approximating that of the sides of the furrow, (see dotted lines *a*, Fig. 1,) which tends to hold the wheels in the furrow in case the tongue should swing around better than if they were straight, as shown in full lines. In the latter case one of the wheels could more easily climb the side of the furrow and cause the other to roll over the corn, whereas with the arrangement disclosed in said dotted lines it is obvious that the tongue may be turned obliquely to about forty-five degrees before there would be any tendency on the part of either wheel to climb the furrow, such action simply swinging the wheel around until its side extends approximately parallel to that of

the furrow. The shovels may be adjusted in the same manner as the wheels, and while performing their cultivating function assist in the retention of the wheels in their proper position in the furrow, being also capable of vertical adjustment to vary the depth of cut by the vertical adjustment of angle-arms 40, as hereinbefore explained.

In crossing dead-furrows or ditches the entire weight of the cultivating-disks and appurtenances thereof is frequently thrown upon the plow-beams and the supporting-bar. At times this trouble has resulted in a bending of the beams and twisting of the bars, and to avoid it in the future I employ the breakable pins 35, which break under the imposition of a strain too great for the beams and bar to bear in safety, the driver being provided with additional pins to replace the broken ones, as will be readily understood.

When driving to or from the field or in crossing ditches or obstructions, the driver by the proper manipulation of lever 53 can easily and quickly raise the cultivating appliances to an inoperative position above the ground without the necessity of raising the additional weight of the platform and himself, it being obvious that as the relation between the wheels and the platform is fixed the latter is not affected by the rise or fall of the cultivating appliances.

From the above description it will be apparent that I have produced a lister-cultivator embodying the features of advantage enumerated as desirable in the statement of invention, and while I have illustrated and described the preferred embodiment of the same it is to be understood that I reserve the right to make such changes in its form, proportion, detail construction, and arrangement of the parts as shall not involve a departure from its spirit and scope or sacrifice any of its advantages.

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

1. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to said frame and underlying the platform, a non-rotatable bar suspended from said frame, arms supported from said bar and provided with carrying-wheels, a companion transverse bar hinged to the first-named bar, cultivating appliances carried by said last-named bar, a lever, and means to secure the same at the desired point of adjustment, and a link or links connecting said lever with said hinged bar, substantially as described.

2. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to said frame and underlying the platform, a non-rotatable bar suspended from said frame, arms supported from said bar and provided with carrying-wheels, a companion transverse bar hinged to the first-named bar, cultivating appliances carried by said hinged bar and embodying pivoted plow-beams, breakable pins supporting said plow-beams rearward of their pivotal point, a lever, and means to secure the same at the desired point of adjustment, and a link or links connecting said lever with said hinged bar, substantially as described.

3. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to said frame and underlying the platform, a non-rotatable bar suspended from said frame, arms supported from said bar and provided with carrying-wheels, a companion transverse bar hinged to the first-named bar, sleeves mounted on the hinged bar, arms projecting from said sleeves, cultivating appliances secured to said sleeves, embodying plow-beams pivoted to the sleeve-arm, breakable pins uniting said arms and plow-beams rearward of the pivotal point of the latter, a lever, and means to secure the same at the desired point of adjustment, and a link or links connecting said lever with said hinged bar, substantially as described.

4. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to said frame and underlying the platform, a non-rotatable bar suspended from said frame, arms supported from said bar and provided with carrying-wheels, a companion transverse bar hinged to the first-named bar, sleeves mounted on the hinged bar, and provided with vertical bearings and with vertical grooves, and disk-carrying arms embodying vertical portions extending through said bearings and provided with ribs to engage certain of said grooves, substantially as described.

5. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to said frame and underlying the platform, a non-rotatable bar suspended from said frame, arms supported from said bar and provided with carrying-wheels, a companion transverse bar hinged to the first-named bar, sleeves mounted on the hinged bar, and provided with vertical bearings and with vertical grooves, angle-arms engaging said bearings and provided with ribs engaging certain of said grooves, arms rotatably secured to the lower ends of the angle-arms and provided with rosettes at their lower ends, and disk-carrying arms provided with rosettes engaging and adjustably secured to those of the last-named arms, substantially as described.

6. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to the frame and underlying the platform, hangers depending from said frame at opposite sides of the tongue, a bar secured non-rotatably in said hangers, braces uniting the hangers with the tongue, sleeves adjustably clamped on said bar between the hangers and provided with rosettes at their front ends, and wheel-carrying arms provided with rosettes at their upper ends engaging

and clamped to the rosettes of said sleeves, substantially as described.

7. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to the frame and underlying the platform, hangers depending from said frame at opposite sides of the tongue, a bar secured non-rotatably in said hangers, braces uniting the hangers with the tongue, sleeves adjustably clamped on said bar between the hangers and provided with rosettes at their front ends, wheel-carrying arms provided with rosettes at their upper ends engaging and clamped to the rosettes of said sleeves, a second bar hinged to the first-named bar, sleeves adjustably mounted on said second bar, cultivating appliances carried by said sleeves, a lever mounted on the tongue and provided with devices to secure it at the desired point of adjustment, and a link or links connecting said lever with said hinged bar, substantially as and for the purpose described.

8. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to the frame and underlying the platform, a transverse bar suspended from said frame and suitably braced from the tongue, downwardly and forwardly sloping arms adjustably supported from said bar so as to swing laterally at their front ends, and wheels carried by said arms, substantially as described.

9. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to the frame and underlying the platform, a transverse bar suspended from said frame and suitably braced from the tongue, downwardly and forwardly sloping arms adjustably supported from said bar so as to swing laterally at their front ends, and embodying an upper portion and a lower portion the latter being adjustably carried by the former, and carrying-wheels connected to the lower portion of said arm, substantially as described.

10. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to the frame and underlying the platform, a transverse bar suspended from said frame and suitably braced from the tongue, and downwardly and forwardly sloping arms, adjustably supported from said bar so as to swing laterally at their front ends, and embodying an upper portion and a lower portion the latter being adjustably carried by the former, and provided with a rosette at its lower end, and embodying also a laterally-projecting portion having a rosette engaging and clamped to that of the last-named portion, and provided also with carrying-wheels, substantially as described.

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

AUSTIN M. WESTON.

Witnesses:
H. C. RODGERS,
G. Y. THORPE.