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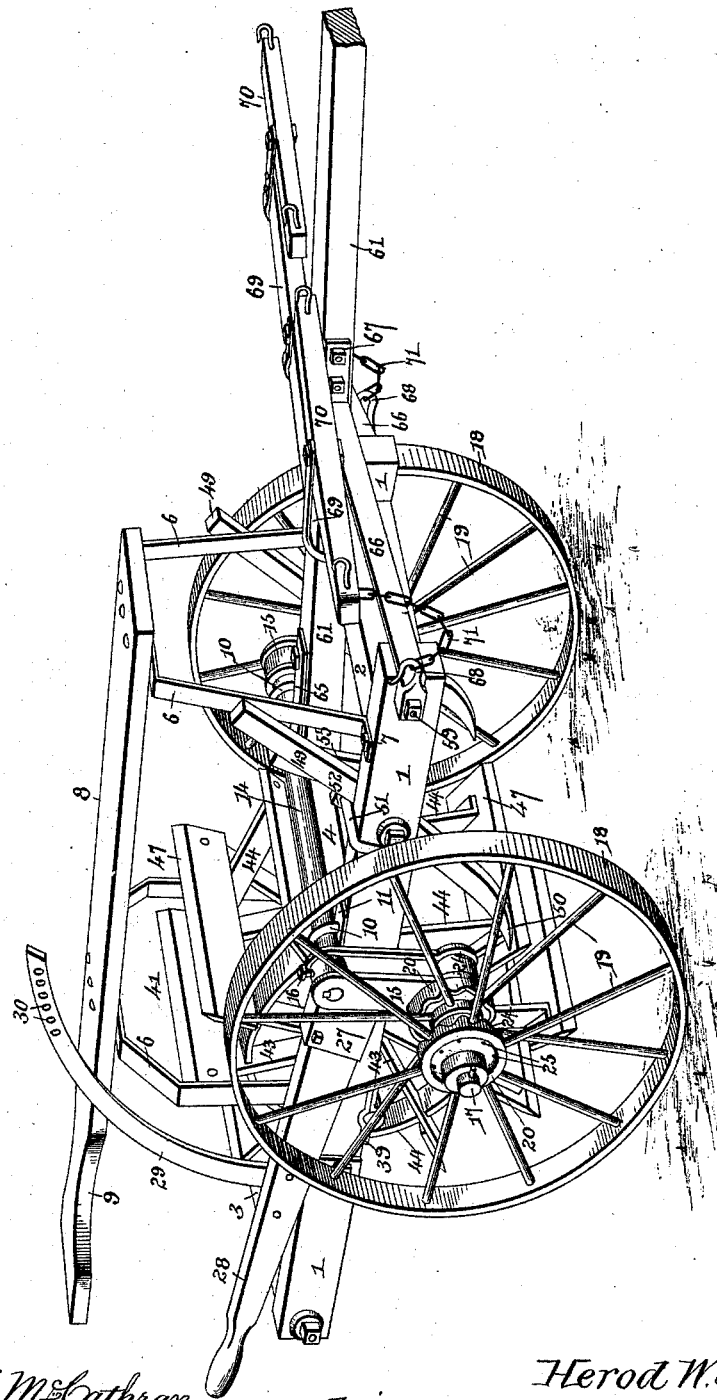
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H. W. ALLEN.
STALK CUTTER.

No. 527,230.

Patented Oct. 9, 1894.

FIG. 1.



Witnesses

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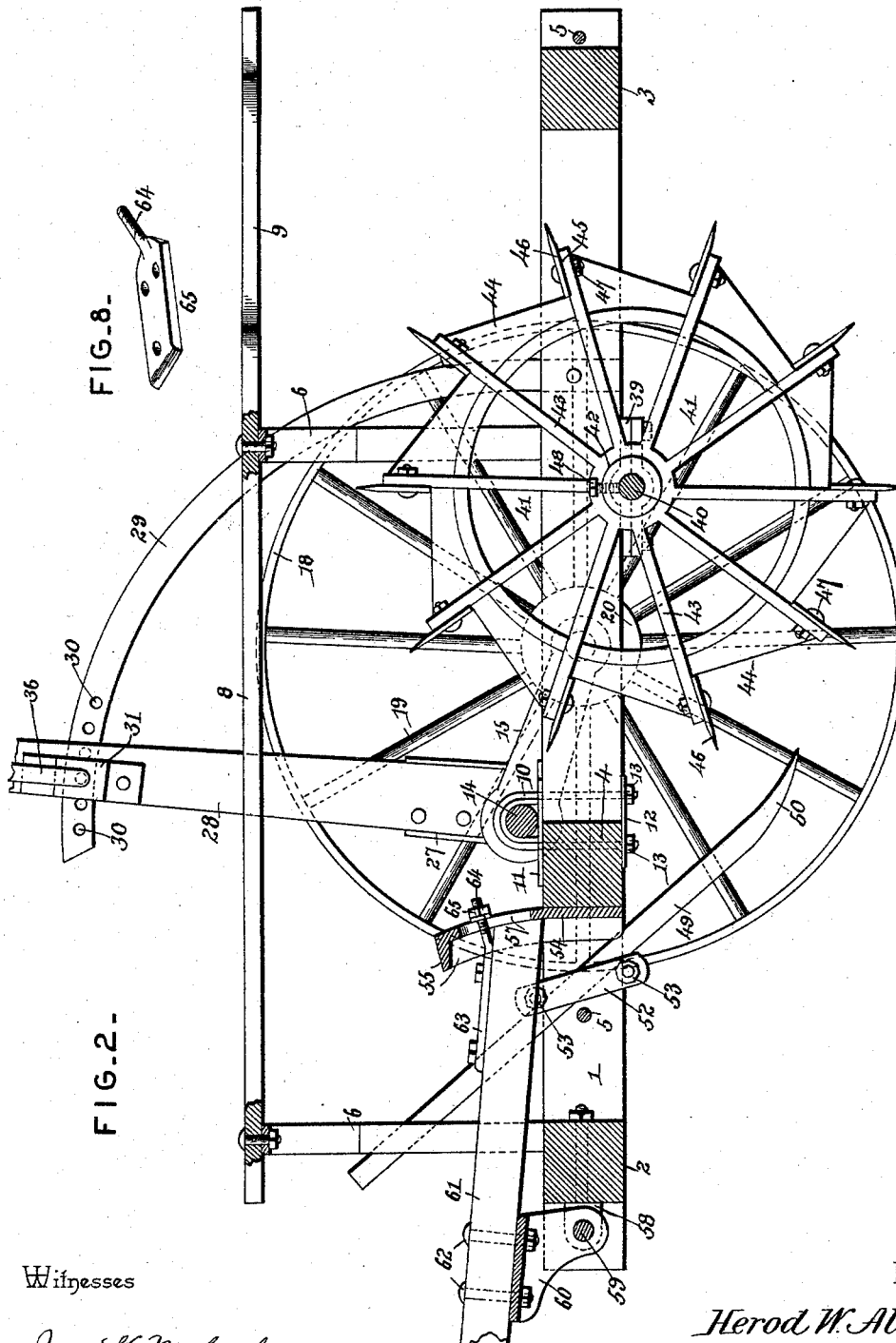
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3 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

HEROD WALTER ALLEN, OF LATTA, SOUTH CAROLINA.

STALK-CUTTER.

SPECIFICATION forming part of Letters Patent No. 527,230, dated October 9, 1894.

Application filed February 23, 1893. Serial No. 463,398. (No model.)

To all whom it may concern:

Be it known that I, HEROD WALTER ALLEN, a citizen of the United States, residing at Latta, in the county of Marion and State of South Carolina, have invented a new and useful Stalk-Cutter, of which the following is a specification.

My invention relates to improvements in stalk-cutters of that class embodying a framework and a supporting stalk-cutting wheel whose blades are forced through the stalks by the weight of the machine in addition to that of the operator as the machine is dragged along, and said wheel therefore caused to rotate; and the invention has reference especially to certain improvements upon my United States Patent, No. 478,676, granted July 12, 1892.

The objects of my present invention are to improve the manner of connecting and adjusting the draft-beam with the framework whereby the former may be readily detached when it is desired to ship the machine or store it and also to provide for a ready adjustment of the pole and machine relatively; to provide a new and improved means for directing the stalks to the path of the cutting-wheel to obviate the necessity of removing the ground-wheels when it is desired to operate the machine, whereby the machine may be readily converted in a short space of time from an operative to an inoperative position or vice versa; and, finally, to improve the construction of the wheel adapted for this class of machines, whereby the same may be maintained tight and all rattling and looseness of the spokes in the hub or ring will be obviated.

Other but minor objects of the invention will hereinafter appear and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a perspective view of a stalk-cutting machine constructed in accordance with my invention. Fig. 2 is a vertical longitudinal sectional view. Fig. 3 is a detail in perspective of one of the frame-bars upon which is journaled the axle and the mechanism for raising and lowering the ends of the same. Fig. 4 is a transverse sectional view through said frame-

bar, the axle and its operating means being shown in elevation. Fig. 5 is a detail in perspective of a cast-metal arm employed to guide and secure the rear end of the draft-pole or beam at a desired angle or elevation with relation to the remainder of the machine. Fig. 6 is a detail in perspective of the clip or cuff employed for securing the stalk-gathering devices to the frame-bars of the machine. Fig. 7 is a sectional view of the two hubs employed in each ground-wheel together with the sleeve upon which the same are adjustably mounted. Fig. 8 is a detail in perspective of the tenoned plate employed at the rear end of the draft-pole or beam and which is adjustably connected with the cast-metal guide-arm illustrated in Fig. 5.

Like numerals of reference indicate like parts in all the figures of the drawings.

In practicing my invention I employ in this instance, as in the previous one, a rectangular or oblong framework and the same consists of the opposite side frame-bars or beams 1, the front frame-bar 2, the rear frame-bar 3, and an intermediate frame-bar 4, the said frame-bars 2, 3 and 4 being suitably connected by bolts or otherwise to the bars 1 and serving to establish that rigidity of structure so desirable in this class of machines. The frame-bars are further aided in the maintenance of rigidity by a series of suitably located tie-rods 5, which pass through the frame-bars 1 at the sides of the machine beyond which they are headed and bolted in a manner obvious. Surmounting the frame thus constructed near the front and rear ends thereof is a pair of metal arches 6, whose terminals are laterally bent to form securing feet, are perforated, and rest upon the upper sides of the bars 1 to which they are bolted as indicated at 7. These arches support an elevated seat-board 8, whose rear end extends beyond the rear arch and is provided at opposite sides with cut-out portions or recesses 9 designed to accommodate the legs of the driver or operator whose feet it will be understood rest upon the upper sides of the side frame-bars 1. Of course it will be understood that any suitable seat may be employed, but I have found it convenient to employ this one and extend the same beyond the point

required for the accommodation of the driver so as to form a guard over the cutting-wheel and prevent accident by contact therewith.

A pair of staples 10 have their terminals 5 passed through metal-plates 11 that are mounted on the upper sides of the side frame-bars 1 in advance of the longitudinal centers thereof, the terminals of said staples projecting through corresponding holes in the 10 said side-frame-bars below which they extend through clip-plates 12 and are secured in position by means of nuts 13. These staples 10 are located in transverse alignment and in addition to passing through the plates 11 and 15 12 and the side frame-bars they also embrace or straddle a transverse shaft or axle 14 whose ends extend slightly beyond the side frame-bars and have mounted thereon in this instance cast-metal crank-arms 15. The cast-metal crank-arms are keyed upon the axle 14 and in addition may be secured by means of 20 binding-bolts 16 which pass through the upper ends of the crank-arms and impinge upon the axle. The lower ends of the crank-arms are provided with suitable wheel-receiving spindles 17, and upon each of these is mounted 25 a ground-wheel of the machine. These ground-wheels, as is well known, are merely intended to support the machine during transportation to and from the field of operation, as when in operation the same are usually removed so as to lower the cutters, hereinafter described, into operative position upon the ground.

It will be understood that any suitable design or construction of ground-wheel may be employed, but I have herein illustrated one which I deem to be particularly adapted for this class of machines and which I will now 40 proceed to describe, at the same time calling attention to Fig. 7 of the drawings in addition to Fig. 1. Each wheel consists of a rim 18, a set of staggered spokes 19, two separate and independent hubs 20, and a sleeve 21. The 45 sleeve is tubular and is mounted loosely upon the spindle of the axle, and at its center has formed thereon a radially extending lug or ear 22 having a transverse perforation 23. At opposite sides of this lug or ear the sleeve 21 is externally threaded in reverse directions, that is provided with right and left screw-threads. 50 The hubs 20 are likewise internally threaded to agree therewith and are mounted upon the sleeve as shown in Fig. 7 heretofore referred to. The peripheries of the hubs are provided 55 with notched flanges 24, and in these are engaged the butts of the spokes 19. The hubs are also provided with an annular series of perforations or bolt-holes 25 and may be secured in relative position upon the sleeve 21 through the medium of a tie-bolt 26 designed to be passed through any pair of the perforations 25 of the two hubs that may align or be coincident with the perforation 23 in the lug or 60 ear 22. It will be seen that by removing the bolt 26 and holding the sleeve firm while the wheel is revolved as a whole said hubs will

be drawn toward each other or spread apart and consequently the spokes either tightened or loosened as the case may require. In this 70 manner the wheels may be always maintained rigid or tight and may be thus adjusted without removing them from the machine and without the necessity of carrying them to the blacksmith for this purpose.

One, or it may be both, of the cranks 15 is 75 provided near its upper end with integral socket 27, the same extending at a right angle to the crank and being designed to receive and have bolted therein a suitable hand-lever 80 28 that rises at the side of the machine within convenient reach of the driver when perched upon the seat-board. In rear of the hand-lever there is bolted to the side frame-bar 1 at which that crank 15 is located that is pro- 85 vided with the socket 27, a segmentally-shaped locking bar 29 which extends forward at the inner side of the lever 28 and is provided with a series of locking perforations 30. The lever 28 is provided at its inner side 90 coincident with the bar 29 with a keeper 31 which receives loosely the locking-bar 29. This keeper is provided with a perforation 32 in alignment with the series of perforations 30 in the locking-bar as shown in Fig. 4. 95 Above the keeper in a pair of bearing-ears or lugs 35 located upon the inner side of the lever 28 is a small locking-lever 36 whose lower end is bent at an angle to form a teat or lug 37 designed to pass through the perforation 32 100 of the keeper and into any one of the perforations 30 of the locking-bar that may happen to be coincident therewith.

The lower or locking end of the lever 36 is 105 normally pressed inward so as to readily engage with a coincident perforation of the locking-bar through the medium of a coiled spring 38 that is interposed between the upper end of the lever 28 and said locking-lever. 110

It will be obvious from the foregoing that the driver may readily grasp the hand-lever 28 at the same time compressing the locking-lever with his fingers, whereby the locking-lever is unlocked from its connection with 115 the locking-bar and by a manipulation of the lever 28 cause the cranks to be swung and the shaft of the axle upon which they are mounted to be partially rotated, and in this manner raise and lower the machine, locking 120 the same at any point of elevation or depression.

Slightly in rear of the longitudinal center of the framework there are secured upon the under sides of the side frame-bars 1 ordinary 125 bearing-boxes 39 and in the same is loosely mounted for rotation the cutter-shaft 40, said shaft being transversely disposed and supporting between the bearings 29 a pair of opposite and similarly constructed spiders or 130 cutter-wheel sections 41. Each spider or wheel-section consists of a central hub 42, a series of radial spokes or arms 43, and a connecting web or rim 44. The outer edge of

the web or rim 44 between each pair of spokes is tangentially-disposed, so that the front or advanced face of each spoke will extend beyond the perimeter of the web or rim forming a locking face or shoulder 45. Connecting these wheel-sections is a series of transversely-disposed cutter-blades 46 whose ends are bolted to the faces or shoulders 45 by bolts 47 passing through the blades and shoulders and thus combining with the wheel-sections to form a cutter. Binding-bolts 48 pass through the hubs 42 of the wheel-section and impinge upon the shaft 40. The wheel is one of ordinary construction and forms no part of my present invention, and in fact if thought desirable I may substitute some other construction of wheel for that shown but inasmuch as I prefer this construction I have deemed it best to describe and illustrate the same.

At the inner sides of each of the side frame-bars 1 is an inclined stalk-gathering arm 49 whose lower end is curved rearward as shown at 50 and whose upper end projects some distance above the side frame-bars 1. These bars may be secured in position in any suitable manner, but I have herein illustrated one simple means which by reason of its simplicity and the ease with which the arm may be adjusted I prefer to employ. Such means consist of a pair of cuffs or clips 51 of general U-shape which straddle the side frame-bars 1 extending beyond the upper and lower edges thereof to the inner side of the framework where they pass through perforations formed in suitable tie-plates 52, beyond which they are provided with nuts 53. These tie-plates embrace the inner sides of the gathering-arms 49 and bind them snugly against the inner sides of the side frame-bars whereby they are maintained rigid. It will be obvious that by loosening these nuts 53 the bars may be raised and lowered so as to be disposed farther from or nearer to the cutter and secured at any suitable point upon the side frame-bars 1, after which by a tightening of the nuts they will be locked securely in position.

Secured to the front face of the intermediate cross-bar 4 at the center thereof is a cast-metal arm or standard 54, and the same is provided at its opposite side edges and its top with guide-flanges 55. The opposite sides of the arm or standard 54 are provided with perforated securing-ears 56 through which bolts are passed into the cross-bar 4. Between the side guide-flanges 55 the said arm or standard is provided with a slot 57. It will be seen that the bottom of the arm is unflanged, and furthermore that the arm as a whole is slightly curved, said arm being curved concentrically with the front cross-bar 2 of the framework. In this front cross-bar 2 there is located a pair of eye-bolts 58, and to the same there is pivoted by means of a transverse bolt 59 an inverted U-shaped bracket 60, whose upper side is flat and supports the draft-pole or beam 61 to which it is

secured by means of bolts 62. The draft-pole or beam 61 extends rearward and takes between the flanges 55 of the curved guide-arm 54 by which it is embraced and therefore loosely guided. A metal plate 63 is bolted to the upper side of the beam 61 at its rear end, and the rear end of this plate, as best shown in Fig. 8, is reduced to form a tenon 64, which is screw-threaded, and, as seen in Fig. 2, projects through the guide-slot 57 of the curved guide-arm 54, beyond which it is provided with a nut 65. It will be obvious that by loosening this nut the relative angle between the draft-beam and the machine may be changed at will, and that by a subsequent tightening of the nut said relative angle may be maintained.

The bolt 59 in addition to passing through the tie-bolts 58 and the perforations in the bracket 60 also pass through the front ends of the side frame-bars 1 and beyond the same, where they pass through perforations formed in the rear ends of a pair of convergent hounds 66 that are bolted as at 67 to the opposite sides of the draft-pole or beam 61 and also through the shanks of a pair of draft-hooks 68 beyond which the said ends are nutted. The draft-beam 61 carries a double-tree 69, at whose ends single-trees 70 are supported, and the outer ends of the double-tree are connected to the draft-hooks 68 through the medium of chains 71, any one of whose links may be engaged by said draft-hooks.

This being the construction the operation of the machine is as follows: By swinging the hand-lever 28 to the rear it will be seen that the cranks will be depressed and consequently the framework elevated so that the cutter will be above the surface of the ground and out of contact therewith. The machine may now be transported to any suitable point, the cutter being inoperative. When the field of operation has been reached the hand-lever 28 is swung to the front, thus raising the cranks and consequently lowering the cutter-wheel and framework. The ground-wheels are raised by the cranks above the ground and out of contact therewith so that the weight of the machine is supported alone by the cutter. The operation of the machine is similar to others of this class and consists simply in severing the stalks as the machine is drawn along over the ground by having its blades forced by the weight of the machine and driver through the stalks, which, as will be obvious, are bent to the ground when struck by the cutters. By means of the gathering-arms 49 the stalks are inverted or drawn together and pressed into the path of the cutter so that a uniform swath or path is thus cleared by the machine as the same passes through a field of stalks. The adjustment up and down of the framework when in the act of raising and lowering the cutter is compensated for upon the part of the draft-beam by means of the adjustment given the same.

Having described my invention, what I claim is—

1. In a stalk cutter, the combination of the rectangular frame-work provided at opposite under sides with bearing boxes, a transverse cutter shaft journaled for a fixed rotation in said bearing boxes, a rotary cutter mounted on said cutter shaft, staple bearings detachably fitted to opposite upper sides of the frame-work in front of said cutter shaft, a separate and independent transverse shaft or axle 14, journaled in said staple bearings and provided at its opposite extremities outside of the frame-work with cast metal crank arms having at their extremities wheel spindles, one of said cast metal crank arms being provided with an integral off-standing lever socket 27, the ground wheels journaled on the spindles of the crank arms, an operating lever removably fitted at one end in said lever socket, and an adjustable locking device for said lever, substantially as set forth.

2. In a machine of the class described, the combination of the rectangular framework,

the cutter rotatably mounted therein, the crank-shaft, the ground-wheels carried thereby, means for raising and lowering the cranks of the shaft, the cross-bars arranged in front of the shaft, the eye-bolts passing through the front cross-bar, the rear concentrically curved flanged and slotted guide-arm 54 located upon the rear bar, the draft-beam abutting against said guide-arm and embraced by the flanges thereof, the metal plate secured upon the draft-beam and having its rear end reduced and threaded and extended through the slot in the guide-arm beyond which it is provided with a nut, and a U-shaped bracket secured to the under side of the draft-beam and pivoted to the eye-bolts, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HEROD WALTER ALLEN.

Witnesses:

D. M. CARMICHAEL,
W. J. ALLEN.