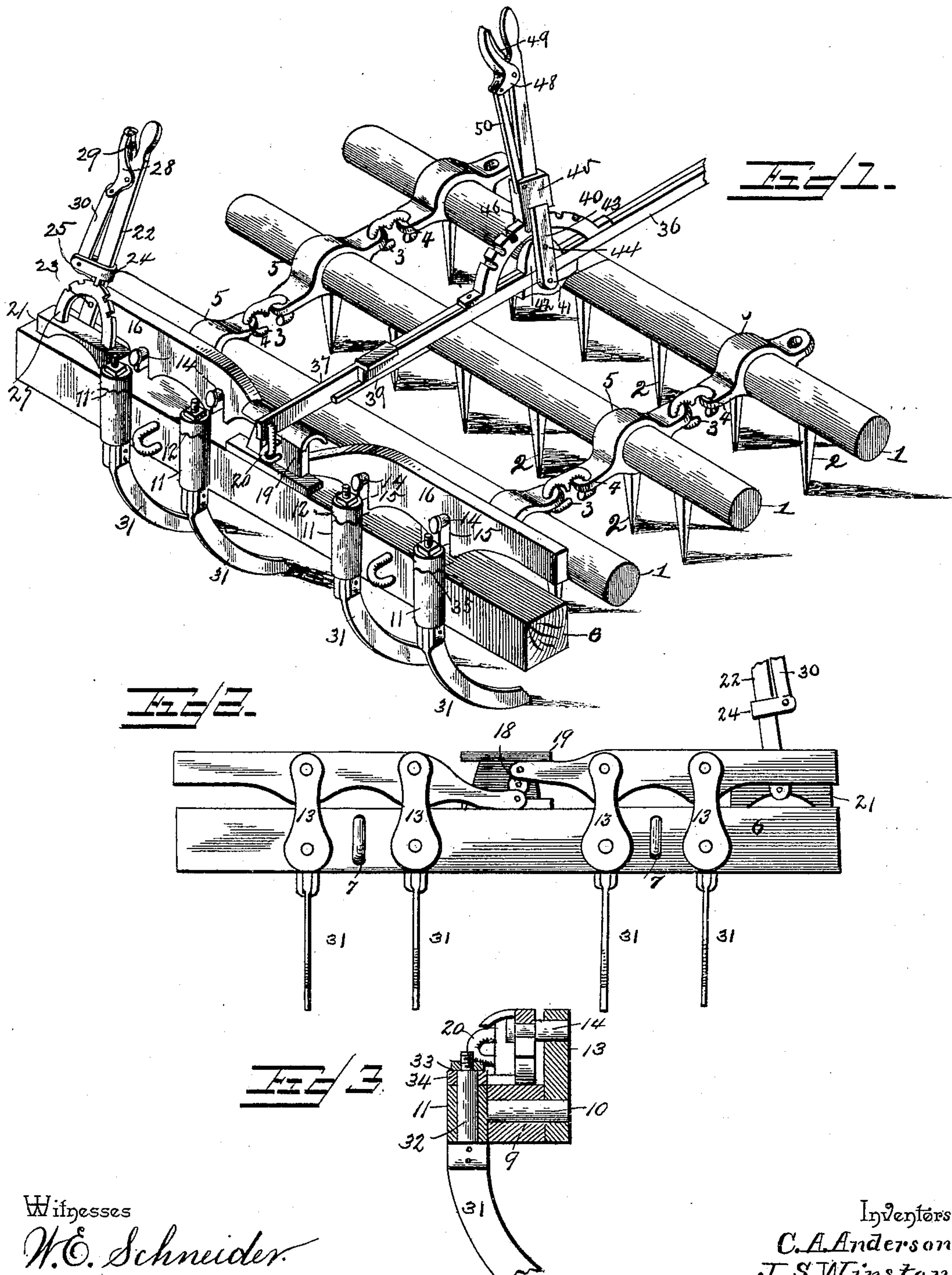


(No Model.)

C. A. ANDERSON & J. S. WINSTON.  
HARROW ATTACHMENT.

No. 496,036.

Patented Apr. 25, 1893.



Witnesses

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# UNITED STATES PATENT OFFICE.

CHARLES ALBERT ANDERSON AND JOHN SMALLWOOD WINSTON, OF STURGIS, KENTUCKY, ASSIGNORS OF ONE-HALF TO JESSE J. JONES AND JAMES S. WILSON, OF SAME PLACE.

## HARROW ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 496,036, dated April 25, 1893.

Application filed August 4, 1892. Serial No. 442,181. (No model.)

*To all whom it may concern:*

Be it known that we, CHARLES ALBERT ANDERSON and JOHN SMALLWOOD WINSTON, citizens of the United States, residing at Sturgis, in the county of Union and State of Kentucky, have invented a new and useful Harrow Attachment, of which the following is a specification.

Our invention relates to improvements in attachments for harrows, and the object in view is to provide an attachment designed for use upon hard soil and where a disk-harrow would be impracticable.

With this and various other objects in view, the invention consists in certain features of construction hereinafter specified and particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a perspective view of a harrow provided with attachments in accordance with our invention. Fig. 2 is a detail in perspective of the attachment. Fig. 3 is a transverse section through the same.

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

1 designates a series of transverse harrow-bars, having teeth 2, depending therefrom. These harrow bars are connected loosely by intermediate links 3, which engage with eyes 4, formed at the opposite sides of pairs of clips 5, with which each of the bars is provided near its ends.

6 designates the bar of the attachment, and the same is designed to be located either in front or in rear of the harrow, but preferably in front where the large clods may be cut previous to operation thereon by the teeth of the harrow. This bar 6 is preferably rectangular in cross-section, and is provided at opposite sides of its center with eyes 7, to be loosely connected by links to the front bar of the harrow. At opposite sides of the center the bar is also provided with transverse openings 9, and through each opening passes a transverse eye-bolt 10, the eyes 11 of said bolts being located in front of the transverse beam 10 and having their upper edges serrated or toothed as at 12. Arms 13, are secured rigidly to the rear ends of the eye-bolts, there being preferably, and

in this instance, a pair at each side of the center of the transverse beam 6. These arms 13 are provided at their inner ends with forwardly-disposed pins 14, which take into bearing recesses 15 formed upon the under sides of a pair of connecting-rods 16. The connecting rods 16 have their inner ends pivoted at 17 to the opposite extremities of a centrally pivoted rocking-lever 18, which is mounted upon the rear side of an I-shaped standard 19. The standard 19 is bolted upon the upper side of the beam 6 at about the center thereof, and is provided at its front side with an eye 20. Upon a bearing-block 21, mounted upon the beam 6 at one side of the center is pivoted a hand-lever 22, and the same is loosely connected by a bolt 23, with one of the connecting-bars 16. A sleeve 24 with depending locking teeth 25, is mounted upon the lever 22 and is designed to engage with the notches 26, formed in a curved locking-bar 27 rising from the standard 21. A bell-cranked locking lever 28 is pivoted on the hand lever, is spring pressed by a spring 29, and is loosely connected to the rear sleeve by means of a link 30. It will thus be seen that by a vibration of the hand-lever the connecting-bars may be moved in or out and thus the eye-bolts be partially rotated in either direction. By reason of the connecting bars being pivoted to the sides of the center of the small lever 18 the bolts at opposite sides of the center are given opposite movements.

31 designates a series of curved cutters or teeth, whose convex edges are beveled to form cutting edges and the same are secured at their upper ends to reduced cylindrical shanks 32. Each shank passes through an eye 11 and above the same is threaded and receives a nut 33 and an intermediate locking washer 34, whose under side is serrated or toothed at 35, so as to engage with the serrations or teeth formed upon the upper sides of the eyes 11. By a proper manipulation of the nuts and serrated washers the shanks may be secured in proper relative position and absolutely locked against any movement within the eyes.

36 and 37 designate a pair of overlapping



adjusting bar-sections the outer ends of which have eyes and are connected by links 38 with the eye 19 of the attachment bar and with the corresponding eye located at the center of the rear transverse harrow bar. Each of the bar sections 36 and 37 is provided with keepers 39 whereby the bar sections are loosely or slidably connected. A curved locking standard 40 rises from the bar section 36 and a fulcrum block 41 depends from the under side of said bar-section opposite the locking standard. A bearing block 42 rises from the section 37 within the standard and the latter is embraced by a bifurcated lever 43 which is pivoted by bolts 44 to the bearing blocks of the two bar-sections. A locking-sleeve 45, is mounted for reciprocation on the lever and the same has a tooth 46, designed to engage and lock with the notches in the aforesaid locking-bar. A bell-cranked locking-lever 48, is pivoted to the lever, a spring 49 being interposed between the upper branch of the same and the lever, while a link 50 loosely connects the lower branch of the bell-cranked lever with the locking-sleeve.

It will be understood that our attachment may be employed in connection with any style of harrow, and we have merely illustrated the same in connection with the present form of harrow for the purpose of showing its applicability. We therefore do not limit our invention to use in connection with any particular form of harrow.

From the foregoing description in connection with the accompanying drawings it will be seen that we have provided a cheap and simple attachment that may be used either at the front or rear of a harrow and which will operate in a manner similar to the well-known disk harrow which is designed to operate upon hard soil and thus prepare the same to be operated upon by the teeth of the usual harrow following thereafter.

By our invention we secure the same results as the disk harrow and yet accomplish it merely by the attachment that may be cheaply manufactured and applied to any ordinary harrow in use.

Having described our invention, what we claim is—

1. The herein-described attachment for harrows, the same consisting of a transverse beam, a series of transverse eye-bolts, cutters mounted in the eye-bolts in front of the beam, crank arms mounted on the rear ends of the eye-bolts and adapted to oscillate, connecting bars loosely connected to the pins of the

crank arms, and a lever for operating the connecting bars, substantially as specified.

2. The herein-described attachment for harrows, the same consisting of a transverse beam provided with a series of transverse openings, eye-bolts mounted to oscillate in the openings, the eyes of the bolts being provided upon their upper sides with serrations, curved cutters having their shanks passed through the eyes and threaded at their upper ends, nuts mounted on the threaded ends of the shanks of the cutters, washers having their under sides serrated and interposed between the nuts and the upper ends of the eyes and means for oscillating the bolts, substantially as specified.

3. The herein-described attachment for harrows, the same consisting of a transverse bar provided at opposite sides of its center with transverse openings, eye-bolts terminating at their rear ends in cranks mounted for rocking in the openings, cutters having shanks mounted and secured in the eye-bolts, a standard rising from the center of the bar or beam, an oscillating lever pivoted on the standard, opposite connecting bars loosely connected to the crank pins and to the opposite extremities of the oscillating lever, a hand lever fulcrumed on the beam and connected to one of the bars, and means for locking the hand lever, substantially as specified.

4. The combination with a series of transverse harrow bars loosely connected together and provided with depending teeth, and the rear bar provided upon its upper side with a central standard having an eye, of a transverse beam provided upon its upper side with a bearing standard also having an eye, said beam being loosely connected to one of the end harrow bars, a series of oscillating eye-bolts journaled in openings formed in the beam, curved cutters removably mounted in the eyes of the bolts, means for oscillating the bolts, and an adjusting bar mounted upon the standards of the beam and harrow bar, links connecting the same with the eyes of said beam and harrow bar, and means for locking the eye bolts and adjusting the adjusting beam, substantially as specified.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

CHARLES ALBERT ANDERSON.

JOHN SMALLWOOD WINSTON.

Witnesses:

JAS. D. HOPEWELL,  
WORTH ANDERSON.