

W. S. MORGAN.
ADJUSTABLE CULTIVATING HARROW.
APPLICATION FILED AUG. 12, 1908.

957,701.

Patented May 10, 1910.

2 SHEETS—SHEET 1.

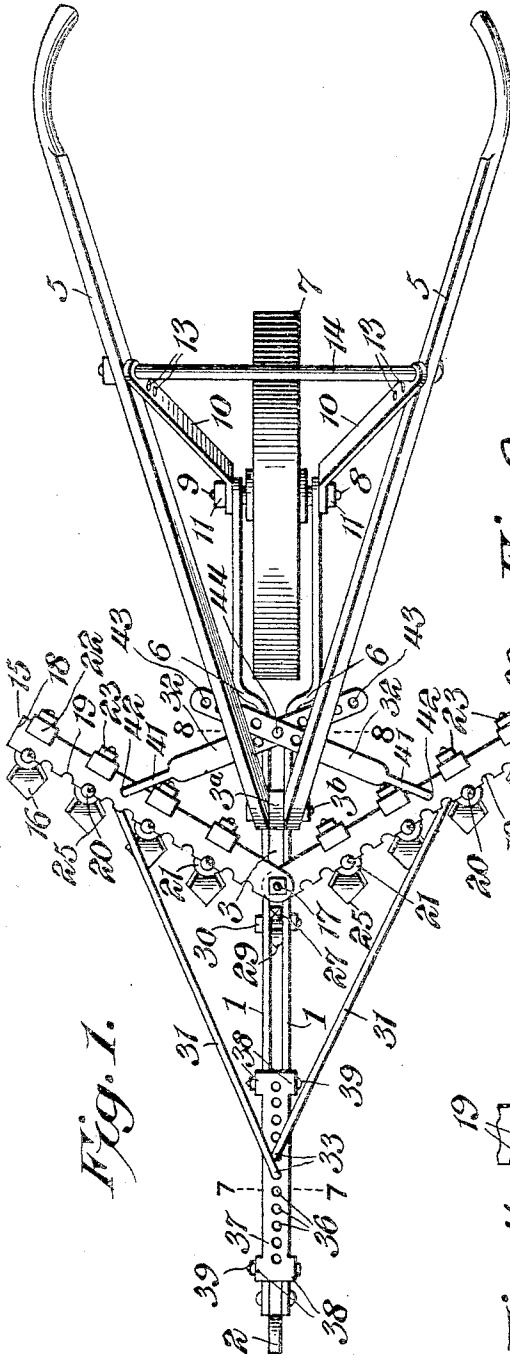


Fig. 1.

Fig. 6.

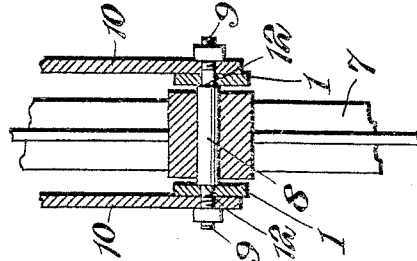


Fig. 9.

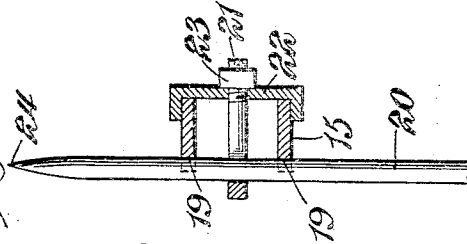


Fig. 8.

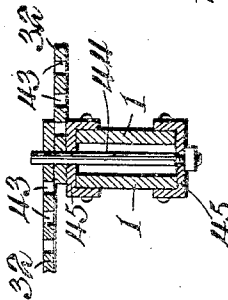
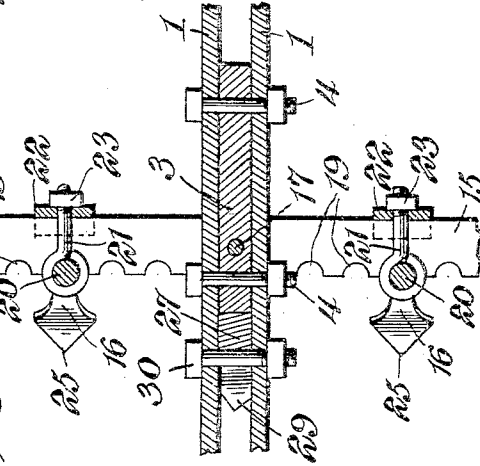


Fig. 11.



Witnesses

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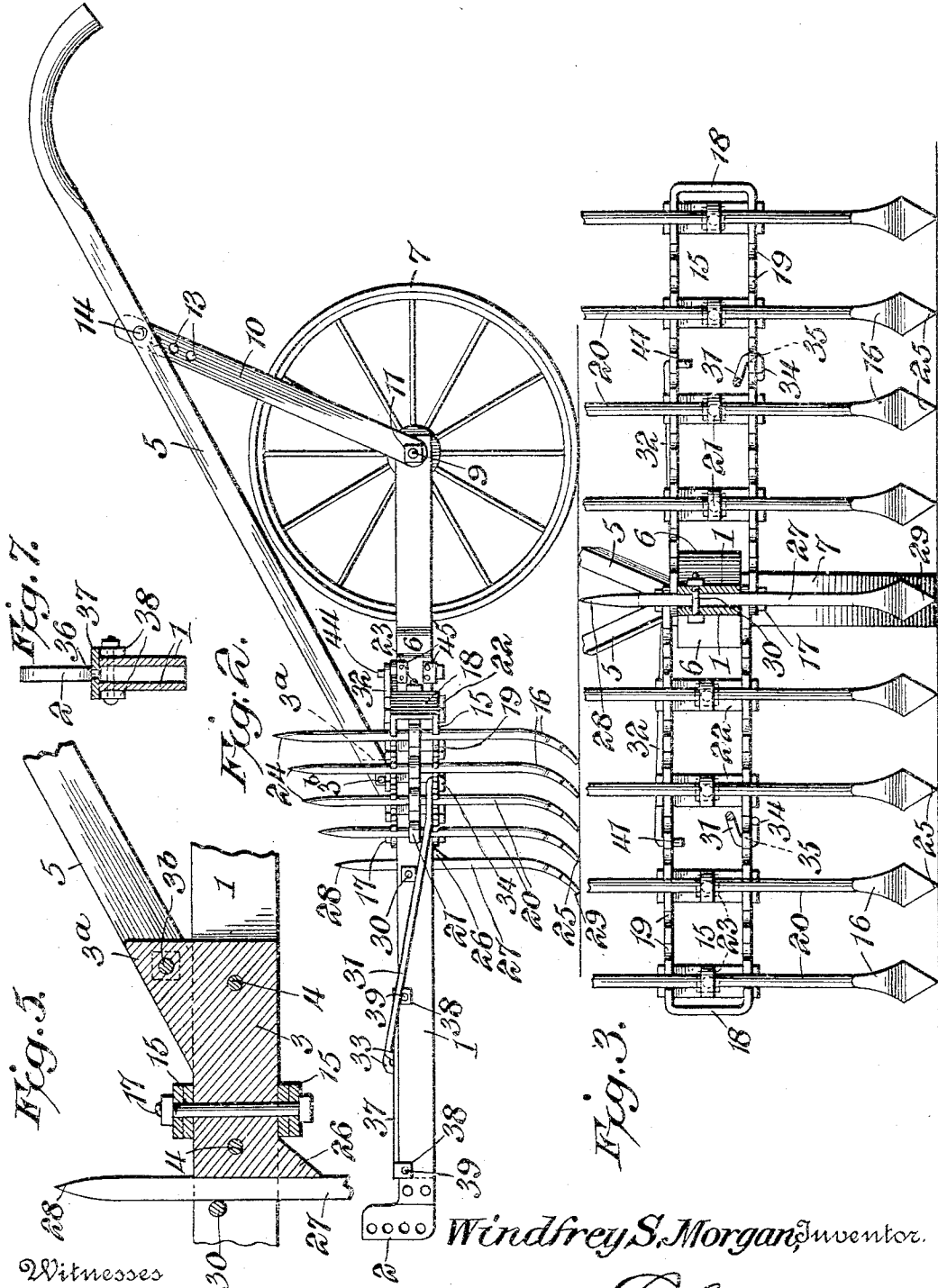
Attorney

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

WINDFREY S. MORGAN, OF LEWISVILLE, ARKANSAS.

ADJUSTABLE CULTIVATING-HARROW.

957,701.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed August 12, 1908. Serial No. 448,226.

To all whom it may concern:

Be it known that I, WINDFREY S. MORGAN, a native-born citizen of the United States, residing at Lewisville, in the county of Lafayette and State of Arkansas, have invented a new and useful Adjustable Cultivating-Harrow, of which the following is a specification.

The invention relates to improvements in harrows.

The object of the present invention is to improve the construction of harrows, and to provide a simple, inexpensive and efficient one of great strength and durability, which will be light running and easily handled.

A further object of the invention is to provide a cultivating harrow of this character, adapted to be adjusted laterally to suit rows of different widths, and capable of enabling its teeth to be adjusted vertically to arrange them in proper position with relation to the soil.

Another object of the invention is to provide a harrow equipped with reversible teeth, adapted either to cultivate the soil or merely scratch the surface of the ground.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a plan view of a harrow, constructed in accordance with this invention. Fig. 2 is a side elevation of the same. Fig. 3 is a transverse sectional view. Fig. 4 is an enlarged horizontal sectional view, illustrating the means for connecting the harrow sections with the beam and the means for adjusting the teeth of the harrow sections. Fig. 5 is an enlarged vertical sectional view, illustrating the construction for pivotally connecting the harrow sections to the beam. Fig. 6 is a detail sectional view, illustrating the construction for connecting the carrying wheel with the rear end of the cultivating beam. Fig. 7 is a detail sectional view on the line 7—7 of Fig. 1. Fig. 8 is a detail sectional view on the line 8—8 of Fig. 1. Fig. 9 is a detail

sectional view, illustrating the construction for adjustably securing the teeth to the harrow sections.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

The cultivating harrow includes a longitudinal beam composed of similar side bars or members 1, constructed of suitable metal and spaced apart, as clearly shown in Fig. 1 of the drawings. The front portions of the side bars or members of the beam are parallel and their front terminals are secured to a suitable clevis 2 by rivets, or other suitable fastening devices. The intermediate portions of the side bars or members of the beam 1 are spaced apart by a filling or spacing block 3, constructed of cast metal, or other suitable material and secured to the side bars or members by transverse bolts 4. The filling or spacing block 3 is provided at its rear end with an upwardly extending tapering lug 3^a, which is arranged between the lower ends of the inclined handles 5. The lower ends of the inclined handles are secured to the upwardly extending lug 3^a by means of a transverse bolt 3^b. The rear portions of the side bars or members are bent laterally at 6 to space them a greater distance apart to receive a supporting wheel 7. The supporting wheel 7, which renders the cultivating harrow light running and easily handled, is mounted on a transverse shaft or axle 8, journaled in suitable bearings of the side bars or members of the beam and having threaded terminals 9, piercing the lower ends of handle supporting braces 10 and receiving nuts 11. The shaft or axle is reduced to form shoulders 12 to fit against the inner faces of the spaced side bars or members of the cultivator beam, and to prevent the side bars or members from binding against the hub of the wheel. The braces 10, which extend upwardly and rearwardly from the axle, are slightly inclined and are provided at their upper portions with perforations 13, arranged at intervals and receiving a transverse connecting rod 14, which secures the upper portions of the braces to the handles. The perforations 13 enable the handles to be raised and lowered to position them to suit the operator. The inclined handles extend above and in rear of the carrying wheel, and the cultivating harrow is adapted to be readily balanced on the wheel,

which acts as a fulcrum in supporting and handling the cultivator. The wheel is preferably provided with a broad periphery to prevent it from sinking into the soil.

5 The harrow is equipped with a pair of laterally extending pivoted harrow sections 15, provided at intervals with harrow teeth 16 and detachably connected at their inner ends to the beam by means of a vertical bolt 17. Each harrow section is in the form of an adjustable arm, and consists of upper and lower horizontal bars or members connected at their outer ends by short vertical portions 18, each harrow section being preferably constructed of a single piece of metal bent at opposite sides of the center to form the said upper and lower horizontal portions and the vertical connecting portion. The inner ends of the upper and lower horizontal bars or members are perforated for the reception of the vertical pivot bolt 17, which pierces the spacing block 3. The bars or members of the harrow sections are provided at their front edges with notches 19, arranged at intervals and receiving the shanks 20 of the harrow teeth 16. The shanks of the harrow teeth are rounded, and the notches 19 are substantially semi-circular to conform to the configuration of the said shanks, and the latter are secured to the sections by means of horizontal eye bolts 21, provided at their front ends with eyes to receive the shank 20 and having rear threaded portions, which pierce clips 22 and which receive nuts 23. The clips, which are substantially U-shaped, are arranged at the rear edges of the upper and lower bars or members of the harrow sections, and they are composed of horizontal upper and lower portions and a vertical connecting portion. The upper and lower horizontal portions are arranged on the upper and lower faces of the harrow sections, and the connecting portions of the clips are engaged by the nuts 23. By this construction the harrow teeth may be raised and lowered and securely held at any desired adjustment. The harrow teeth are reversible in addition to being adjustable, and are equipped with upper sharp pointed ends 24 and their lower ends 25 are diamond pointed. The diamond pointed ends 25 are designed to cultivate the ground and the pointed ends simply scratch the soil.

The front end of the spacing block 3 is provided with a depending lug 26 to provide an enlarged portion to receive and brace a central harrow tooth 27, provided with a squared shank and having an upper sharp pointed end 28 and a lower diamond pointed end 29. The central tooth 27, which is adjustable vertically, is clamped in its adjustment by the side bars or members, which are pierced by a clamping or jam nut 30. In practice the squared shank will be one inch in width and the spacing block 3 scant

one inch to permit the side bars or members to clamp the central tooth, which is also reversible to present either point to the soil. The front portions of the side bars or members of the harrow beam may, however, be spaced any other distance apart, and the block and the teeth may be varied in width, as will be readily understood. The pivoted harrow sections are adapted to be arranged at right angles to the beam, as illustrated in Fig. 3 of the drawings, or they may be adjusted backwardly or forwardly, or one of the side sections may be adjusted backwardly and the other forwardly. This will enable the harrow to be varied in width and the teeth thereof to be arranged in different positions. The harrow sections are secured in their adjustment by front and rear braces 31 and 32. The front braces consist of rods provided at their terminals with front and rear hooks 33 and 34. The rear hooks 34 are linked into perforations 35 of the lower bars or members of the harrow sections, and the front hooks are adapted to engage a central longitudinal series of perforations 36 of an adjusting plate 37, secured to the cultivator beam and supported by the upper edges of the side bars or members 1. The adjusting plate 37 is provided with integral lugs 38, arranged in pairs at the front and rear ends of the plate 37 and depending therefrom. The lugs 38, which are located at the outer faces of the side bars or members of the harrow beam, are pierced by transverse bolts 39, which secure the lugs to the said side bars or members. The rear braces 32 are in the form of bars provided at their front ends with hooks 41, which engage perforations 42 of the upper bars or members of the harrow sections. The inner or rear portions of the rear braces are provided at intervals with perforations 43, which are adapted to be engaged by a vertical stud 44, projecting from the beam at a point in advance of the bends 6. The stud is supported by a pair of upper and lower clips 45, and preferably consists of a rod or bolt passing through the upper clip and having a lower reduced threaded portion, piercing the lower clip and forming a shoulder to engage the upper face of the same and provided with a nut for engaging the lower face of the lower clip. The rod, which forms the stud 44, may be mounted on the beam in any other preferred manner. By means of the front and rear braces, the pivoted side sections of the harrow may be quickly adjusted and held in their adjusted position.

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

1. A harrow including a longitudinal beam composed of spaced members, a supporting wheel mounted between the rear

portions of the said members, harrow sections extending laterally from the beam in advance of the wheel, handles connected with the beam in rear of the harrow sections, and rear braces connected with the harrow sections and with the beam at a point between the handles and the wheel.

2. A harrow including a longitudinal beam composed of side members having their rear portions bent laterally and spaced apart, an axle, a wheel mounted on the axle and arranged between the rear portions of the side members, inclined handle bars connected with the beam in advance of the wheel, braces secured to the beam by the said axle and adjustably supporting the handle, and a harrow section mounted on the beam in advance of the wheel.

3. A harrow including a longitudinal beam composed of spaced side members, a spacing block arranged between the side members of the beam and secured to the same, said spacing block being provided with an upwardly extending lug, inclined handle bars pivoted at their lower ends to the projecting lug of the spacing block, braces adjustably connecting the upper portions of the handle bars with the beam, and a harrow section connected with the beam.

4. A harrow including a longitudinal beam composed of spaced side members, a spacing lug mounted between the members, adjustable harrow sections having upper and lower members and extending from opposite sides of the beam, a vertical pivot piercing the spacing lug and the inner ends of the upper and lower members of the harrow sections and securing the same to the beam, and means for securing the harrow sections in their adjustment.

5. A harrow including a longitudinal beam composed of spaced side members, a spacing block mounted between the side members, adjustable harrow sections having their upper and lower members and extending from opposite sides of the beam, a vertical pivot piercing the spacing block and the upper and lower members of the harrow sections and securing the same to the beam, means for securing the harrow sections in their adjustment, and a central harrow tooth adjustably mounted between the side members.

6. A harrow including a longitudinal beam composed of spaced side members, har-

row sections pivoted to and extending laterally from the beam, an adjusting plate provided with front and rear lugs arranged in pairs and embracing the side members of the beam and secured to the same, said adjusting plate extending longitudinally of the beam and provided at intervals along the same with perforations, and braces connected with the sections of the harrow and having means for engaging the perforations of the adjusting plate.

7. A harrow including a longitudinal beam composed of spaced side members, harrow sections pivotally connected with and extending from opposite sides of the beam, upper and lower clips engaging the side members of the beam in rear of the harrow sections, a rod piercing the clips and projecting from the upper clip to form a stud, and braces connected with the harrow sections and provided with perforations to receive the said stud.

8. A harrow including a beam, laterally extending harrow sections pivotally connected with the beam, a front adjusting plate located in advance of the harrow sections, a stud extending upward from the beam in rear of the harrow sections, and front and rear braces connected with the harrow sections and provided, respectively, with means for engaging the adjusting plate and the stud.

9. A harrow including a beam having spaced members, a spacing block secured between the members, a tooth fitted against the spacing block and arranged between the members, and means for adjustably connecting the members to cause the same to clamp the tooth.

10. A harrow including a beam composed of spaced members, a spacing block secured between the members and provided at its front end with a projecting lug, a tooth fitted against the front end of the spacing block and the lug thereof, and a transverse bolt piercing the members in advance of the tooth for causing the said members to detachably clamp the tooth.

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

WINDFREY S. MORGAN.

Witnesses:

E. H. CANFIELD,
C. H. BORHAM.