

H. M. RHODES.
HARROW.

APPLICATION FILED APR. 9, 1910.

987,680.

Patented Mar. 21, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

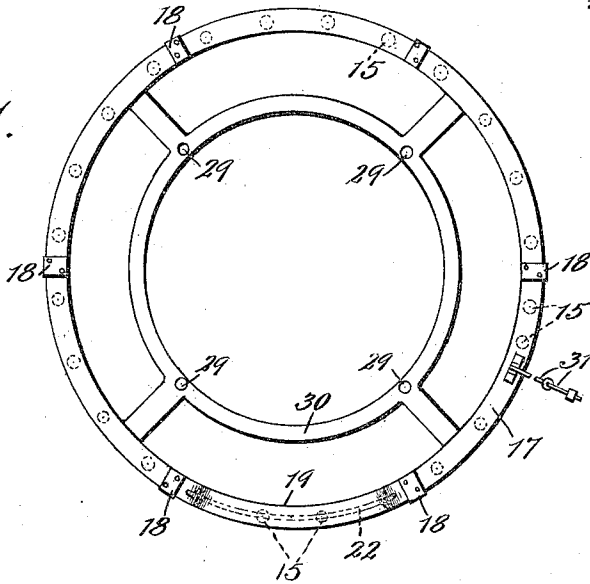


Fig. 2.

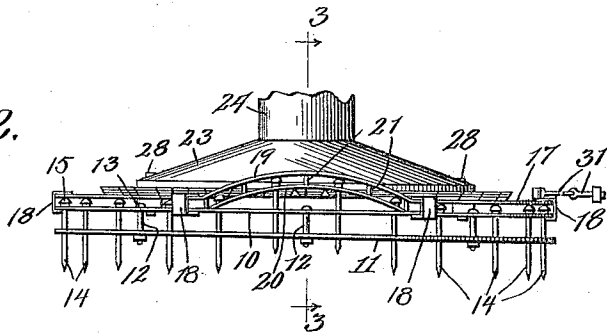


Fig. 3.

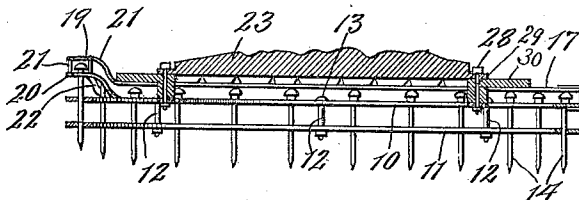
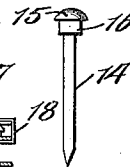


Fig. 4.



Witnesses:

Wm. D. Perry
J. F. Johnson, Jr.

Inventor:

Herbert M. Rhodes
By M. W. R. Rhine

Att'y.

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2 SHEETS-SHEET 2.

Fig. 6.

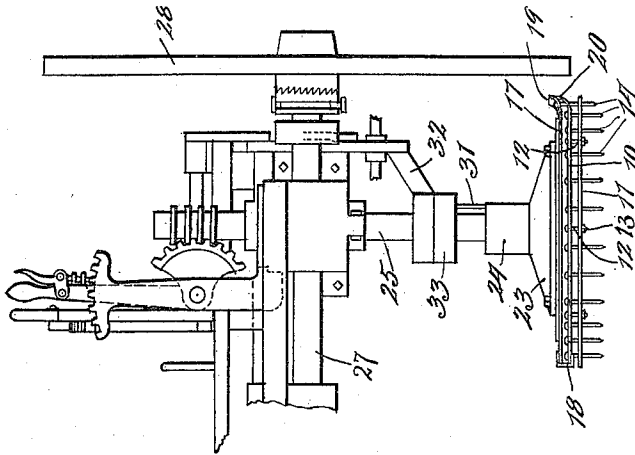
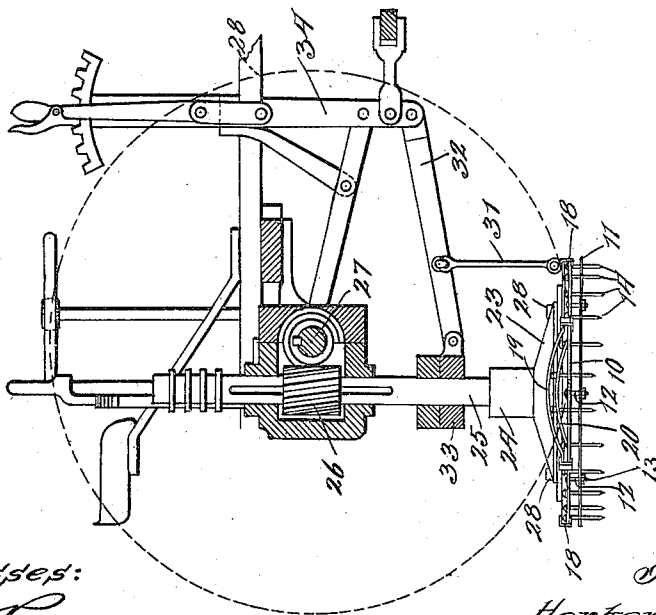


Fig. 5.



Witnesses:

Ed. D. Perry
J. H. Gochius, Jr.

Inventor.

Herbert M. Rhodes

By Arthur M. Rhodes

Att'y.

UNITED STATES PATENT OFFICE.

HERBERT M. RHODES, OF POTOSI, MISSISSIPPI.

HARROW.

987,680.

Specification of Letters Patent.

Patented Mar. 21, 1911.

Original application filed January 5, 1910, Serial No. 536,547. Divided and this application filed April 9, 1910. Serial No. 554,313.

To all whom it may concern:

Be it known that I, HERBERT M. RHODES, a citizen of the United States, residing at Potosi, in the county of Yazoo and State of Mississippi, have invented certain new and useful Improvements in Harrows, of which the following is a specification.

This application is a division of application Serial No. 536,547, to which latter reference may be had for a detail description of the operation of the parts not specifically described herein, and relates to improvements in harrows especially adapted, though not necessarily, for use with the stalk puller described and claimed in the said application, and one of the objects of the present invention is to provide an improved rotatable harrow embodying improved means for automatically cleaning the harrow teeth.

A further object is to provide an improved device of this character which will be simple, durable and cheap in construction, effective and efficient, and one which may be readily employed as a rotatable or a drag harrow.

To the attainment of these ends and the accomplishment of other new and useful objects, as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings, illustrating an embodiment of the invention, and in which—

Figure 1 is a top plan view of an improved harrow of this character constructed in accordance with the principles of this invention. Fig. 2 is an end elevation of a portion of the head showing the harrow attachment applied thereto. Fig. 3 is a detail sectional view on line 3—3 of Fig. 2. Fig. 4 is an elevation of one of the harrow teeth. Fig. 5 is a detail view partly in elevation and partly in section and with parts removed, showing the mechanism for rotating the head. Fig. 6 is a detail and elevation of one side of a machine in connection with which the improved harrow may be employed.

Referring more particularly to the drawings and in the present exemplification of the invention, the harrow preferably comprises a pair of spaced annular members 10, 11, which are held spaced from each other

preferably by means of spacing collars 12 and the parts are secured together preferably by means of fastening devices 13, such as bolts or the like, which pass through the annular members and the collars.

The teeth of the harrow preferably comprise spikes or pins which are provided with heads 15 beneath which is arranged a collar 16. The spikes pass loosely through registering apertures in the annular members 10 and 11, so that the collar 16 will rest upon the uppermost annular member 10, as shown more clearly in Figs. 2 and 3. Supported in any suitable manner above the annular member 10 is another annular member 17, beneath which the heads 15 of the spikes or pins 14 move, and this annular member 17 is supported and secured in position in any desired or suitable manner, preferably by means of clips 18. The annular member 17 is spaced from the annular member 10 a distance substantially equal to the height of the head 15 and the collar 16 of the spikes, so that this annular member 17 will hold the collar 16 against the annular member 10. A portion of the annular member 17 is elevated or curved upwardly as at 19, and arranged beneath this upwardly curved portion 19 is a member 20, which is itself curved upwardly as shown and is parallel with the portion 19. This member 20 is preferably supported from the annular member 17 and is spaced from the portion 19, preferably by means of spacing collars or members 21, which are arranged preferably adjacent the front and rear edges of the member, as shown more clearly in Fig. 3. The member 20 is preferably slotted, as at 22 (see Fig. 3) into which slot the shanks of the pins or spikes 14 are adapted to pass. The harrow thus constructed is adapted to be secured to a head 23 of a hub 24 of the stalk puller, which hub is mounted for rotation upon an upright shaft 25. This shaft 25 receives its motion by means of meshing gears 26, 27, one of which receives its motion from the wheel 28 of the vehicle.

The harrow is secured to the head 23, preferably by means of suitable fastening devices 28, such as bolts or the like, which pass through a portion of the head 23 and through suitable apertures 29 in a portion of the annular member 10. When the harrow is secured in position, the annular

member 17 may be held against rotation in any desired or suitable manner, preferably by means of a link 31, which is secured to the annular member and may also be secured to any suitable fixed support, preferably a link 32, which latter is connected to a collar 33 through which the shaft 25 passes and to an adjusting lever 34 whereby the angle of inclination of the harrow with respect to the surface of the ground may be varied. When thus secured in position and when the machine is advanced, the shaft 25 will be rotated by means of the gears 26, 27, and this will impart rotary motion to the annular members 10 and 11. The annular member 17 being retained against rotation, in the manner already set forth, it will be apparent that the spikes or pins 14 will be rotated with the members 10 and 11 and the extremities thereof will be held projected below the annular member 11 by the annular member 10 under which the heads 15 of the spikes pass. These pins or spikes will be held in this position until they are rotated to a point adjacent the extremity of the member 20. A further rotation of the annular members 10 and 11 in the same direction will cause the shanks of the pins or spikes 14 to pass into the slot 22 in the member 20, and a still further rotation of the annular members in the same direction will cause the pins or spikes to be raised or moved bodily through the annular members 10 and 11, as the collars 16 ride upwardly onto the elevated portion or member 20. A still further rotation in the same direction will cause the pins to ride downwardly at the other extremity of the member 20, so as to pass under the annular member 17 and be held projected so as to engage the ground. The annular members 10 and 11 are supported for rotation with respect to the annular member 17 by means of the clips 18, which latter form supports and bearings for the member 10.

With this improved construction of harrow, it will be apparent that the teeth will engage and harrow the ground when the heads of the pins or spikes are beneath the portion of the annular member 17 which is parallel with the annular member 10, but when they reach a position to be elevated by the member 20, the bodily movement of the spikes or pins 14 through the annular member 11 will clean the teeth by removing all of the accumulated matter or trash which has become fastened to the teeth.

Obviously this improved harrow may be employed as a drag harrow independently of the head 23. In this event the annular member 17 is held against rotation by means of the link 31 to which a swingletree or draft appliance may be attached. When thus employed, it will be obvious that a slight rotation will be imparted to the harrow by

means of the engagement of the teeth with the ground inasmuch as some of the teeth on one side of the harrow will be elevated by passing into engagement with the member 20 and thereby permit a greater strain to be exerted on one side of the harrow than the other.

In order that the invention might be fully understood, the details of the foregoing embodiment thereof have been thus specifically described, but what is claimed as new is—

1. A harrow comprising two portions, one of which is rotatable with respect to the other, means for preventing rotation of the said other portion, teeth supported by the rotatable portion and shiftable with respect thereto, and means for automatically shifting the teeth with respect to the said rotatable portion when the latter is rotated.

2. In a machine of the character described, the combination of a head, means for rotating the head, a harrow attachment, said harrow comprising a body and teeth shiftable with respect thereto, means for securing the harrow directly to the head, to be rotated thereby, and means for shifting the teeth.

3. In a machine of the character described, the combination of a head, means for rotating the head, a harrow attachment, said harrow comprising a body and teeth shiftable with respect thereto, means for securing the harrow directly to the head to be rotated thereby, and means for automatically shifting the teeth with respect to the body of the harrow during the rotation of the harrow.

4. In a harrow, the combination of a body portion, teeth passing loosely through the body of the harrow, means for rotating the harrow, and means for successively drawing the teeth through the body portion as the harrow is rotated.

5. In a harrow, the combination of a body portion, teeth passing loosely through the body, means for rotating the harrow and means for successively moving the teeth through the harrow first in one direction and then in another direction during the rotation of the harrow.

6. In a harrow, the combination of a body portion, independent teeth passing loosely through the body, means for rotating the harrow, and means for successively and automatically shifting the teeth with respect to the body and during the rotation of the harrow to clean the teeth.

7. In a harrow, the combination of a body portion comprising spaced annular members, teeth loosely passing through the members, an annular member coöperating with the teeth to hold the latter in operative position, means for preventing rotation of the last said annular member, means for rotating the first said annular members, and means adapted to be engaged by the teeth

for shifting the teeth through the first said annular members during the rotation of the latter.

8. In a harrow, the combination of a body portion comprising spaced annular members, teeth loosely passing through the members, an annular member cooperating with the teeth to hold the latter against movement with respect to the body of the harrow, a portion of the last said annular member being offset and adapted to be engaged by the teeth to shift the latter during the rotation of the harrow.

9. In a harrow, the combination of a body portion comprising spaced annular members, teeth loosely passing through the members, an annular member cooperating with the teeth to hold the latter against movement with respect to the body of the harrow, a portion of the last said annular member being raised and adapted to be successively engaged by the teeth as the harrow is rotated to move the teeth and shift them through the first said annular members first in one direction and then in the opposite direction to clean the teeth.

10. In a harrow, the combination of a body portion comprising spaced annular members, teeth loosely passing through the members, an annular member cooperating with the first said members for holding the teeth in operative position, a portion of the second said annular member being deflected away from the first said members, a member cooperating with the said deflected portion and spaced therefrom to form a guide way into and out of which portions of the teeth successively move to raise and lower

the teeth through the body portion of the harrow to clean the latter.

11. In a harrow, the combination of a body portion comprising spaced annular members, teeth loosely passing through said members and provided with a shoulder engaging and resting upon one of the members, an annular member spaced from the first said annular members and beneath which the shouldered portion of the teeth pass, whereby the teeth will be held projected into operative position, the second said annular member being provided with a portion deflected away from the first said annular members, a member arranged below the deflected portion and spaced therefrom to form a guide, said member being slotted and over which the shouldered portion of the teeth passes to bodily shift the teeth through the first said annular members as the harrow is rotated and the teeth move into engagement with said deflected portion.

12. In a harrow, the combination of a rotatable body portion, a support for the body and with relation to which the body rotates, means for preventing rotation of the support, teeth passing loosely through the body, and means for successively and automatically shifting the teeth through the body as the harrow rotates.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 1st day of April A. D. 1910.

H. M. RHODES.

Witnesses:

G. D. WILLIAMSON,
S. E. TREANOR.