

No. 809,716.

PATENTED JAN. 9, 1906.

E. R. MILLER.

HARROW.

APPLICATION FILED MAY 3, 1905.

3 SHEETS—SHEET 1.

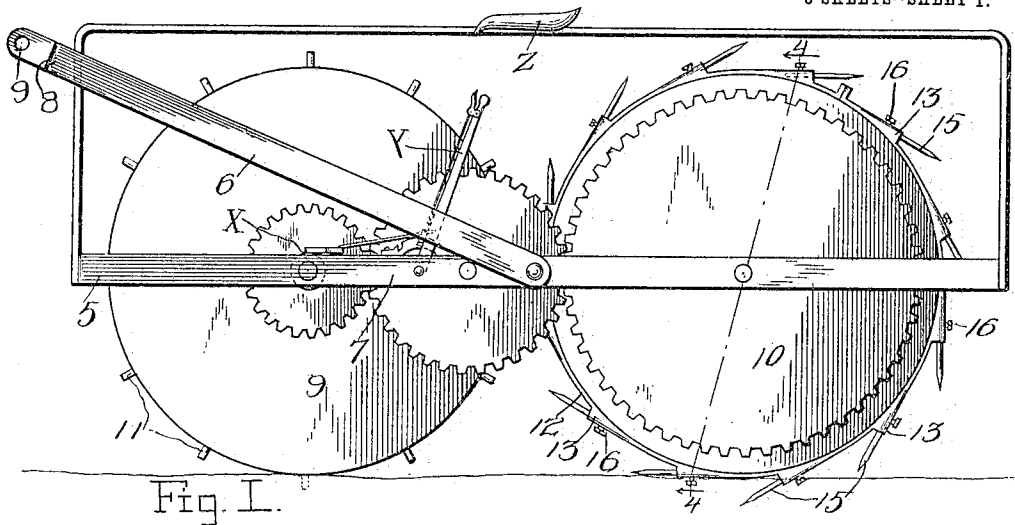


Fig. 1.

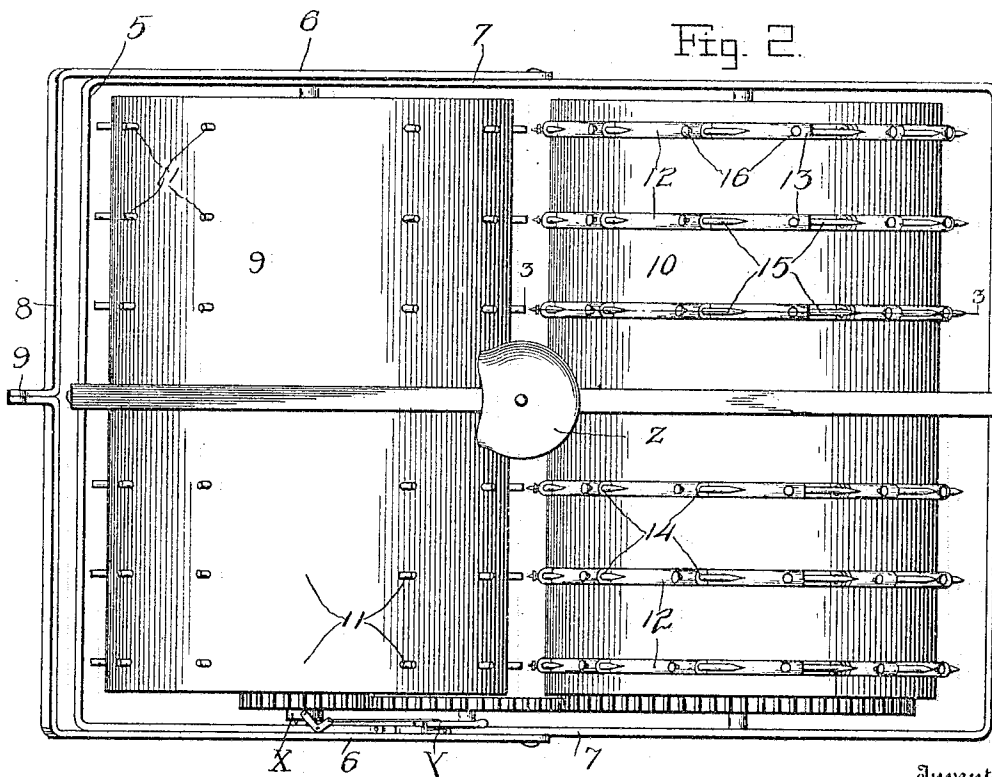


Fig. 2.

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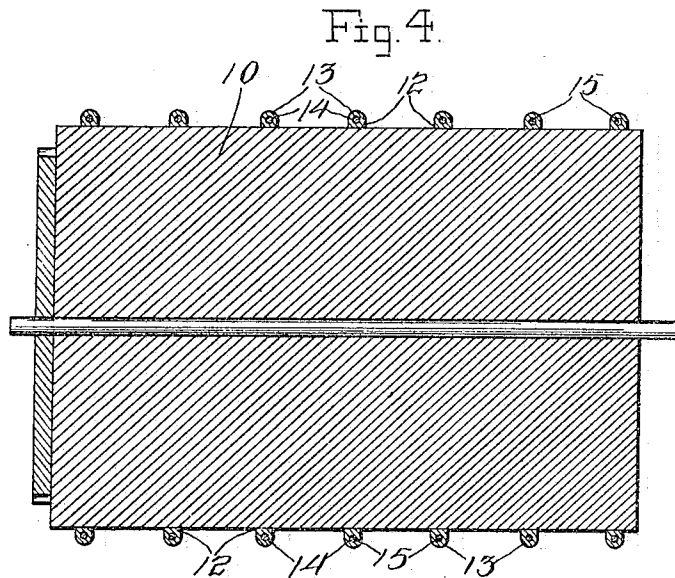
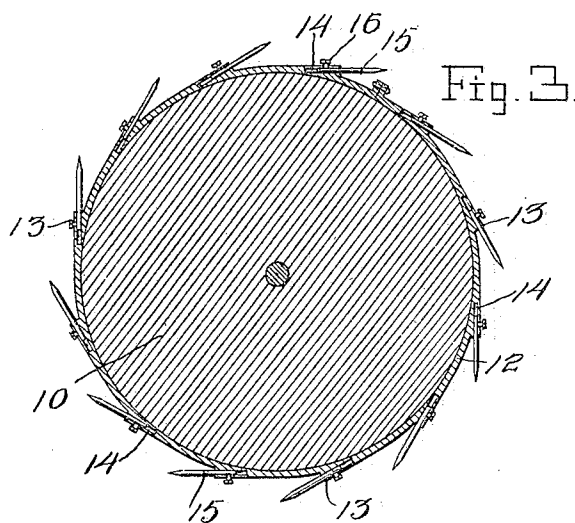
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3 SHEETS—SHEET 2.



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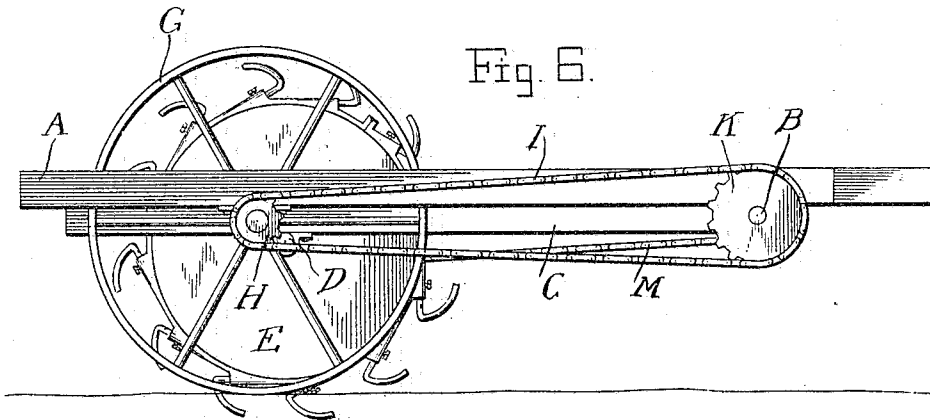
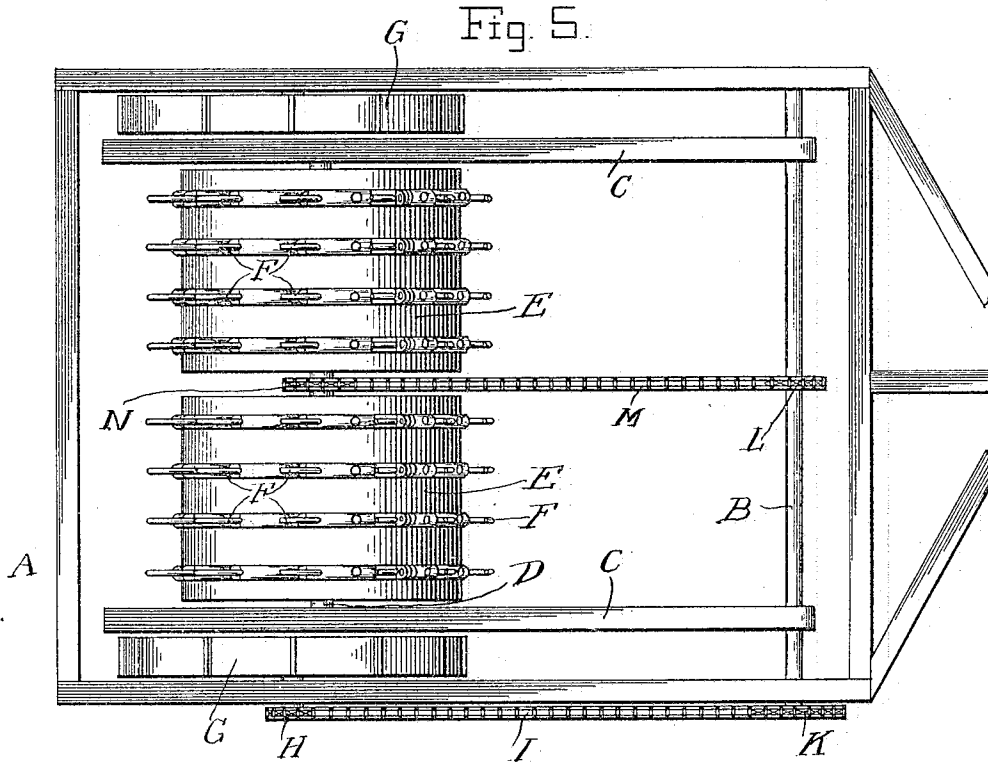
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3 SHEETS—SHEET 3.



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HARROW.

No. 809,716.

Specification of Letters Patent.

Patented Jan. 9, 1906.

Application filed May 3, 1905. Serial No. 258,665.

To all whom it may concern:

Be it known that I, EDWARD R. MILLER, a citizen of the United States, residing at Wytheville, in the county of Wythe, State of Virginia, have invented certain new and useful Improvements in Harrows; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to farm implements, and more particularly to harrows, and has for its object to provide a harrow which will include revoluble tooth-cylinders and in which certain of said teeth will be adjustable to suit different conditions.

Another object is to provide a harrow which may be moved over the ground in different directions to treat the ground in different ways.

Other objects and advantages will be apparent from the following description, and it will be understood that changes in the specific construction shown and described may be made within the scope of the claims and that any suitable materials may be used without departing from the spirit of the invention.

In the drawings forming a portion of this specification, and in which like characters of reference indicate similar parts in the several views, Figure 1 is a side elevation of the present invention. Fig. 2 is a top plan view. Fig. 3 is a vertical section through the harrow-drum, taken on line 3 3 of Fig. 2 and showing the arrangement of the adjustable teeth. Fig. 4 is a longitudinal section of the harrow-drum, taken on line 4 4 of Fig. 1. Fig. 5 is a top plan view of a modified form of the invention, showing two harrow-drums provided with the adjustable teeth and driven by traction-wheels. Fig. 6 is a side elevation of Fig. 5.

Referring now to the drawings, the present invention comprises a rectangular horizontally-extending frame 5, having parallel arms 6 pivoted at one end to its side portions 7 centrally thereof and movable to extend in different directions from the frame, these arms being connected at their outer ends by a cross-piece 8, having draft appliances 9 connected therewith.

Journaled transversely in the frame there are a pair of horizontally-extending drums 9 and 10, the former being what shall be known

as the "traction-drum" and the latter being the "harrow-drum." The traction-drum is provided with a plurality of radially-extending ground-engaging teeth 11 upon its periphery, and the two drums are connected for simultaneous rotation in the same direction, the drum 10 being arranged to rotate somewhat slower than the drum 9.

Engaged with the drum 10 there are a plurality of clamping-bands 12, which may be loosened and shifted longitudinally of the drum to vary the distance between the bands, or these bands may be clamped upon the drum to prevent movement with respect thereto. The bands each have a plurality of projections 13 thereupon, and each of these projections has a pocket 14 therewithin, the open ends of the pockets all lying in the same direction circumferentially of the drum, and these pockets extend at a tangent to the drum. Engaged in each of the pockets there is a tooth 15, and these teeth are adjustable to extend different distances out of the pockets and are sharpened at their outer ends. Set-screws 16 are provided and are arranged for operation to hold the teeth at different points of their adjustment within the pockets. It will thus be seen that movement of the implement with the traction-drum 9 at the forward end thereof will result in movement of the lowermost teeth of the harrow-drum rearwardly, while the drum is of course moved bodily forwardly with the frame. This forward movement of the implement causes the teeth 15 to enter the ground, while the rotation of the drum 10 tends to withdraw them from the ground, so that the teeth are prevented from being caught in weeds and roots, as will be readily understood. If the arms 6 be now shifted and the implement be moved over the ground with the drum 10 in advance, the teeth 15 will be projected positively into the ground and the soil will receive a different treatment.

In Fig. 5 there is shown a modified form of the invention including a frame A, having a transverse shaft B journaled therein at the forward end of the frame. Pivotally mounted at their forward ends upon the shaft B are rearwardly-extending sills C, having a shaft D journaled therein adjacent to the rearward ends thereof, and mounted upon this shaft there are a pair of spaced drums E, having teeth F arranged for adjustment in the manner described above. Wheels G are revol-

bly mounted in the frame A, and one of these wheels is arranged to drive a sprocket H, connected, by means of a chain I, with a sprocket K, carried by the shaft B, this shaft
 5 having a central sprocket L, which is connected, by means of a chain M, with a sprocket N, carried by the shaft D between the drums E. The drums E are thus arranged for movement of their lower portions
 10 rearwardly to withdraw their teeth F from the ground when the implement is moved forwardly to prevent the catching of these teeth by weeds, &c., as in the previously-described form.

15 In the first-described form of the invention a clutch X is provided which is operable to throw the drums out of gear to permit of independent rotation thereof. A hand-lever Y is connected with the clutch, and this
 20 hand-lever may be operated from a seat Z to throw the clutch.

What is claimed is—

1. An implement of the class described comprising a revolubly-mounted drum and
 25 teeth carried by the drum said teeth being adjustable to extend at different distances beyond the periphery of the drum and being also adjustable longitudinally of the drum.

2. In a harrow the combination with a revoluble drum of projections carried by the drum and having pockets therewithin teeth engaged in the pockets and adjustable to extend to different distances thereof, and means for holding the teeth at different
 35 points of their adjustment said teeth extend-

ing at tangents to the drum and in the same direction.

3. An implement of the class described comprising a frame, a traction-drum revolubly mounted in the frame, a harrow-drum
 40 revolubly mounted in the frame, connections between the two drums for simultaneous rotation in the same direction and at different rates of speed, teeth carried by the harrow-drum and extending at tangents thereto in the same direction and draft appliances shift-
 45 able to lie at opposite ends of the frame.

4. An implement of the class described comprising a frame a pair of drums journaled in the frame, spikes carried by one of the
 50 drums, clamping-bands engaged with the other drum for movement longitudinally thereof, said bands being adapted to be clamped upon the drum to hold them against movement thereupon, projections carried by
 55 the bands and having pockets therein, teeth engaged in the pockets and adjustable to extend at different distances therefrom, means for holding the teeth at different points of
 60 their adjustment said teeth extending in the same direction and at a tangent to the drum and connections between the drums for simultaneous rotation thereof at different rates of speed.

In testimony whereof I affix my signature 65 in presence of two witnesses.

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Witnesses:

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