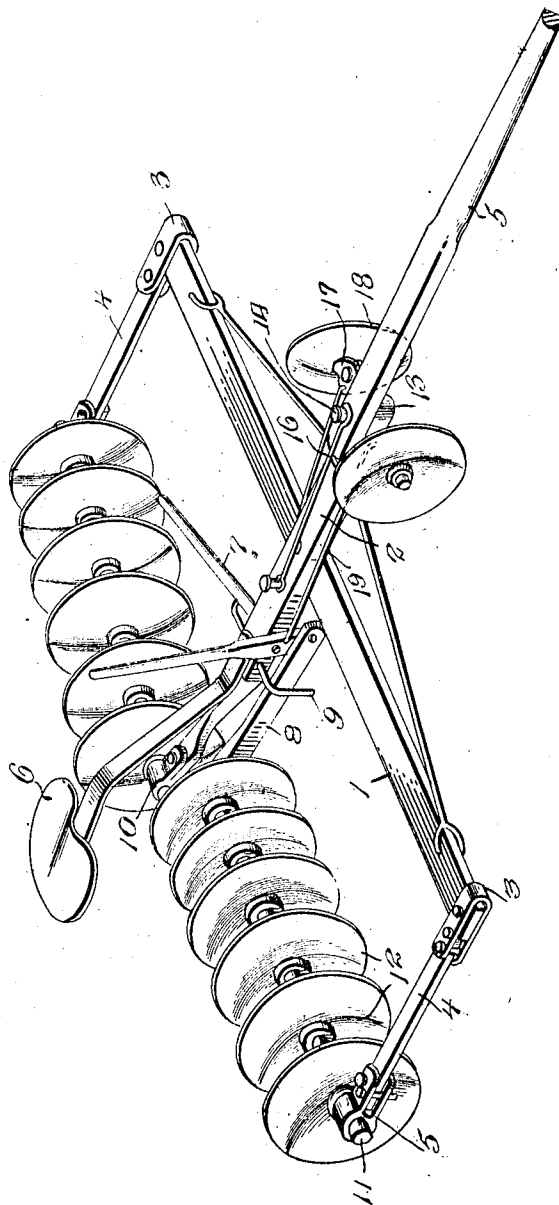


J. W. HILL.
 COMBINED DISK HARROW AND ROLLER.
 APPLICATION FILED SEPT. 6, 1911.

1,054,293.

Patented Feb. 25, 1913.

2 SHEETS-SHEET 1.



W.C.W. 1.

Witnesses
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Joanna M. Hill

Inventor
John W. Hill.

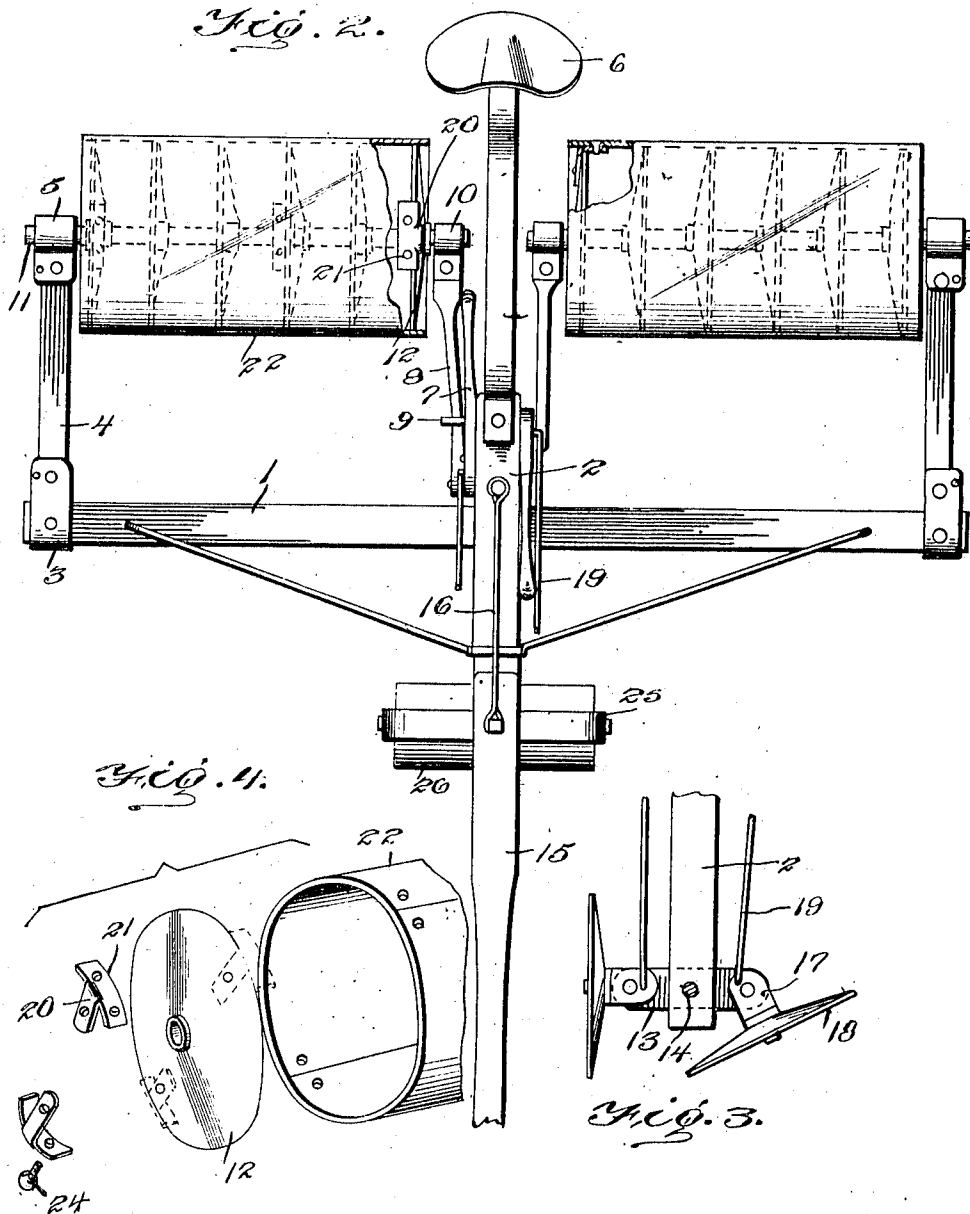
By *A. H. Hill* Attorney.

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UNITED STATES PATENT OFFICE.

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COMBINED DISK HARROW AND ROLLER.

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1,054,293.

Specification of Letters Patent.

Patented Feb. 25, 1913.

Application filed September 6, 1911. Serial No. 647,930.

To all whom it may concern:

Be it known that I, JOHN W. HILL, citizen of the United States, residing near Buford, in the county of McKenzie and State of North Dakota, have invented certain new and useful Improvements in Combined Disk Harrows and Rollers, of which the following is a specification.

This invention relates to combined disk harrows and rollers, and has for its object to provide means for easily and quickly transforming a disk harrow structure into a roller adapted to be used upon the soil for the purpose of pulverizing the same after it has been harrowed.

With this object in view the structure includes a frame having arms pivotally connected with the outer ends thereof and lever mechanisms pivoted upon the intermediate portion of the frame and carrying pivoted arms. Shafts are journaled in these arms and carry harrow disks. Castings are adapted to be applied to these disks, and semi-circular plates are secured to the said castings about the peripheries of the disks, whereby each gang of disks is transformed into a roller section. A stub tongue is mounted upon the frame and is pivotally connected with a draft tongue. In one instance the forward portion of the stub tongue is supported by a minor disk frame upon which disks are journaled and which are operatively connected with the said lever mechanisms to be swung in unison with the gangs of disks carried by the main frame. In another instance, or when the structure has been transformed into a roller, a minor roller frame supports the forward end of the stub tongue and is arranged to turn as the forward portion of the main tongue swings to one side or the other.

For a full understanding of the invention reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a perspective view of the harrow; Fig. 2 is a top plan view of the same with parts in section, showing the structure transformed into a roller; Fig. 3 is a top plan view of a portion of the harrow; Fig. 4 is a perspective view of detached parts which are used for transforming the structure into a roller.

Corresponding and like parts are referred to in the following description and indicated

in all the views of the accompanying drawings by the same reference characters.

The structure includes a main frame 1 upon the middle portion of which is mounted a stub tongue 2. Clips 3 are mounted at the outer end portions of the main frame 1 and the forward ends of arms 4 are pivoted in the said clips for horizontal swinging movement. Bearings 5 are pivoted at the rear ends of the arms 4 for horizontal swinging movement. An operator's seat 6 is mounted upon the stub tongue 2. Levers 7 are fulcrumed one at each side of the stub tongue 2 and the forward ends of arms 8 are pivoted to the lower ends of the said levers. These arms are arranged to swing vertically and are restrained against horizontal swinging movement by means of guides 9 which are attached at their ends to the rear portion of the stub tongue 2 and extend down across the outer sides of the said arms 8. Bearings 10 are pivoted at the rear ends of the arms 8 for horizontal swinging movement, and shafts 11 are journaled in the bearings 5 and 10, there being one shaft located at each side of the main frame 1. A gang of disks 12 is mounted upon each shaft 11.

When the structure is used as a disk harrow the forward portion of the stub tongue 2 is supported by a minor disk frame having disks pivoted thereon and operatively connected with the lever mechanisms as will now be described.

The minor disk frame, indicated at 13, is provided with a fixed upstanding pintle 14 which is journaled in the forward portion of the stub tongue 2 and which passes through the same and projects above the upper side thereof. The rear end of a draft tongue 15 is pivoted to the upper portion of the pintle 14. A brace 16 is connected at one end with the intermediate portion of the stub tongue 2. The upper end of the pintle 14 is journaled in the forward portion of the said brace. The forward end of the brace 16 lies above the upper side of the draft tongue 15. Arms 17 are pivoted upon the minor draft frame 13 at the opposite sides of the stub tongue 2, and disks 18 are journaled upon the outer ends of the said arms. Rods 19 are pivotally connected at their forward ends with the arms 17 at points normally between their pivots and the tongue 2 and the said rods 19 are pivotally connected at

their rear ends with the levers 7. The arrangement is such that when one of the levers 7 is swung so that the shaft 11, which is connected therewith, is pitched at an acute angle to the line of draft of the structure and the disks carried by the said shaft are similarly positioned that arm 17 which is connected with the said lever is swung so that the disk 18 carried by the arm 17 is pitched at a similar angle to the line of draft of the structure and faces in the same general direction as that in which the disks 12 which are carried by the said shaft face. When the said lever 7 is swung so that the shaft 11 is brought approximately at a right angle to the line of draft of the structure, the arm 17 connected with the said lever is swung to a similar position so that all the disks 12 and the disk 18 have their cutting edges approximately parallel with the line of draft of the structure. The minor disk frame 13 together with the disks 18 which support the same are designed to support the forward end of the stub tongue 2 and at the same time the disposition of the disks 18 with relation to the disks 12 at the same side of the structure is such that the disks 18 serve to guide the disks 12.

When it is desired to transform the structure into a roller, castings 20 are bolted or otherwise secured to the sides of some of the disks 12 and the said castings have portions 21 which extend over the edges of the disks to which they are attached. Semi-cylindrical plates 22 are placed over the edges of the disks 12 and are secured in position by means of screws or bolts 24 which are passed through the said plates 22 and countersunk at their heads in the outer sides thereof and are tapped into the portions 21 of the castings 20. Two plates 22 are placed around each gang of disks 12 and thus each gang of disks is transformed into a roller section. The minor disk frame 13 hereinbefore described is removed from the forward end of

the stub tongue 2 and a minor roller frame 25 is substituted in its stead. The frame 25 carries a roller 26 which is adapted to travel in a path which lies between the inner sides of the roller sections into which the gangs of disks 12 have been transformed.

Having thus described the invention, what is claimed as new is:

1. An agricultural machine comprising a main frame, a stub tongue supported thereon, gangs of disks pivotally connected with the main frame, lever mechanisms operatively connected with the inner ends of the gangs of disks and adapted to be manipulated to position the gangs of disks at desired angles with relation to the line of draft of the machine, a disk frame located at the forward portion of the stub tongue, disks pivotally mounted upon the last mentioned disk frame, and means operatively connecting the last mentioned disks with the lever mechanisms at the same side of the machine.

2. An agricultural machine comprising a main frame, a stub tongue supported thereon, arms pivoted at the outer ends of the main frame for limited horizontal swinging movement, bearings pivoted at the rear ends of said arms for limited horizontal swinging movement, lever mechanisms mounted upon the stub tongue, a minor disk frame located at the forward end of the stub tongue, disks pivotally mounted upon said frame, means operatively connecting said disks with the lever mechanisms, arms pivoted to the levers for vertical swinging movement, bearings pivoted at the rear ends of the last mentioned arms for horizontal swinging movement, shafts journaled in said bearings, and gangs of disks carried by the shafts.

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

JOHN W. HILL. [L. S.]

Witnesses:

Mrs. D. B. WILBUR,
RALPH E. WILBUR.