Jan. 5, 1926. 1,568,896

A. P. McKAY

DISK HARROW

Filed Oct. 20, 1924 4 Sheets-Sheet 1

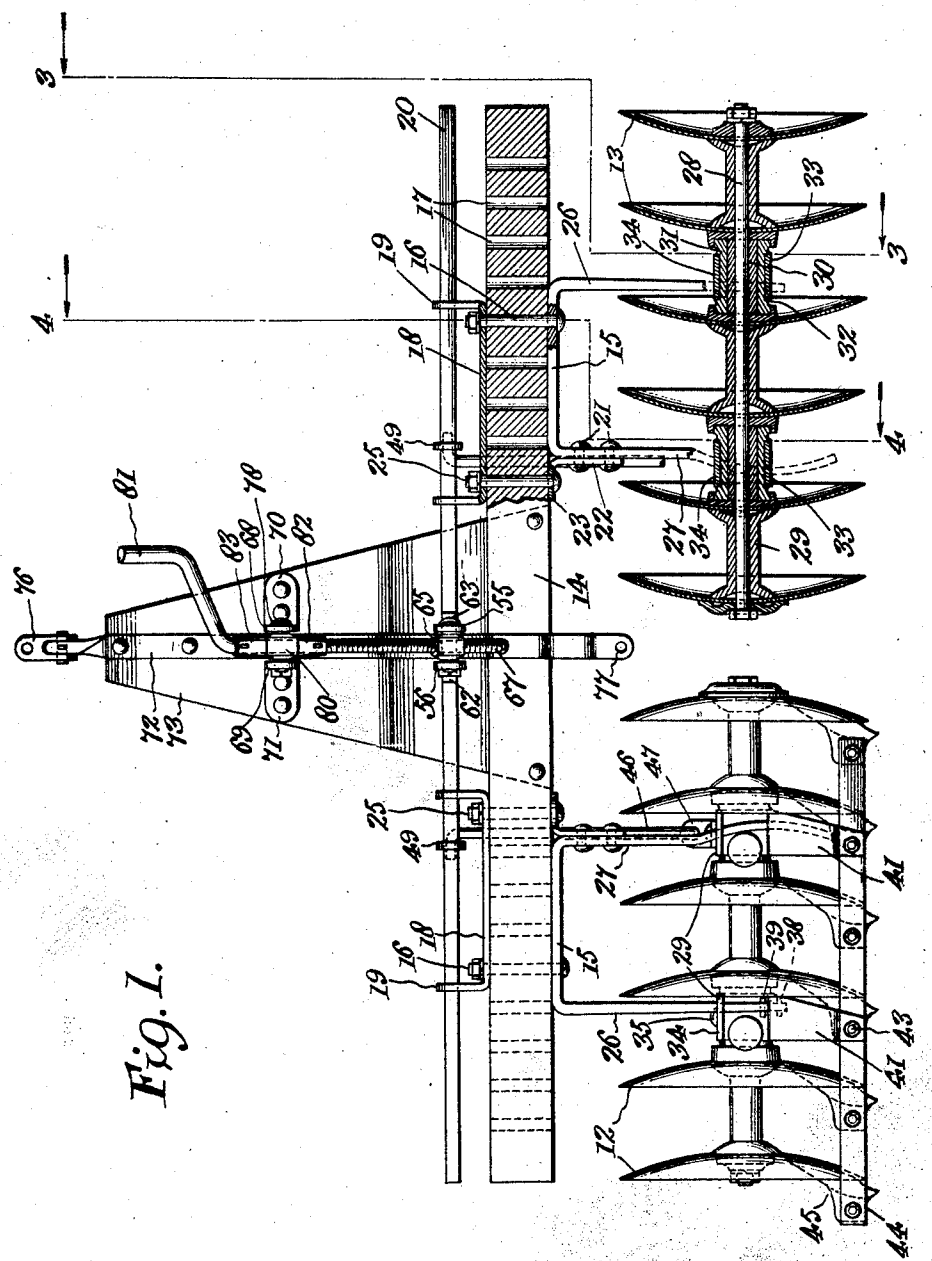


Fig. 1.

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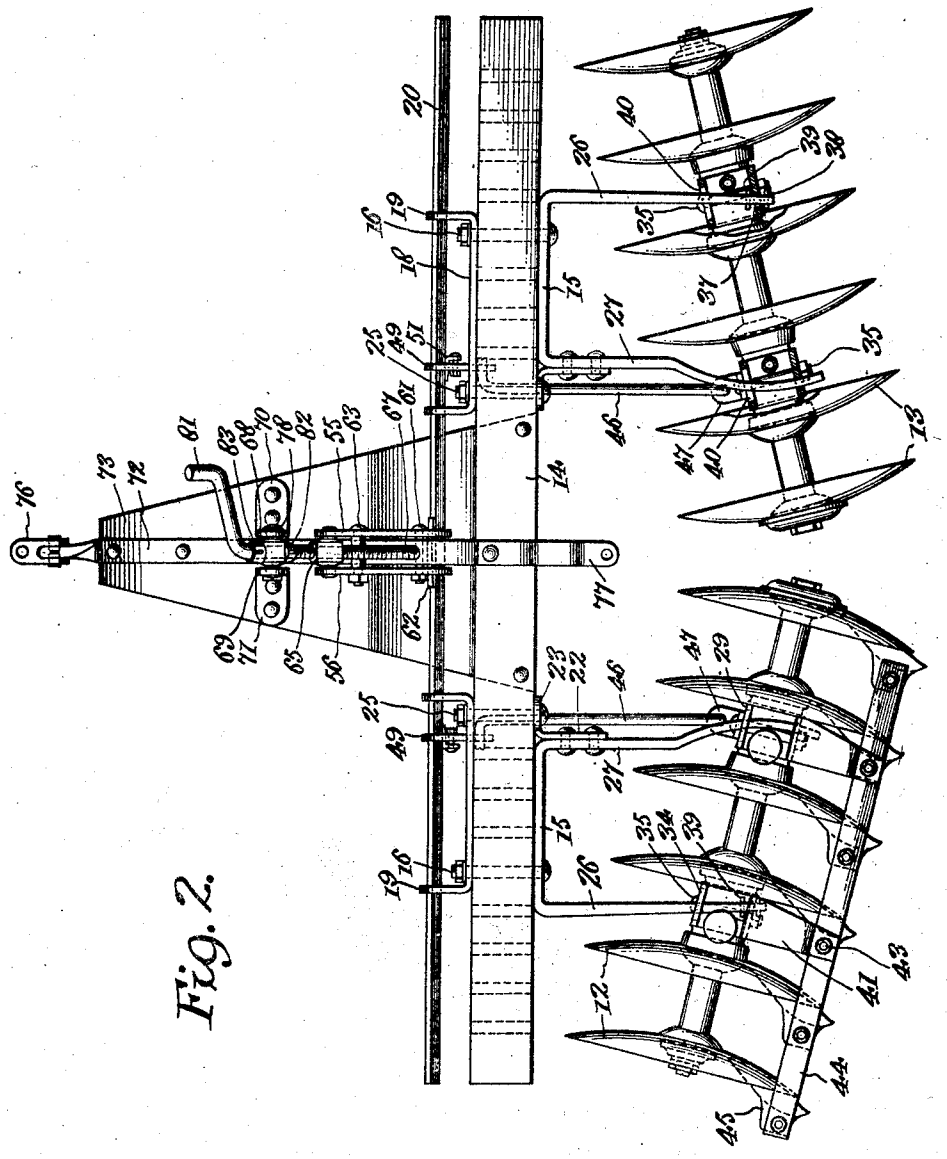


Fig. 2.

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DISK HARROW

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Fig. 3.

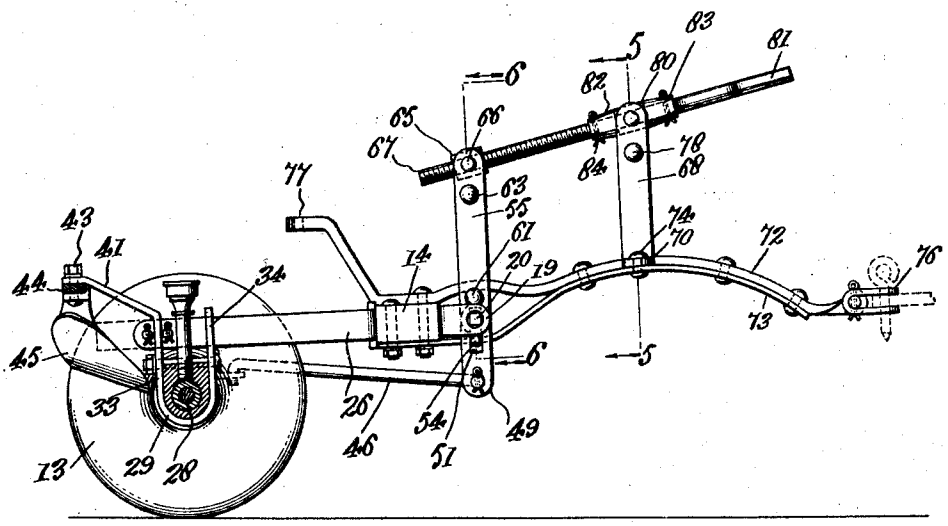
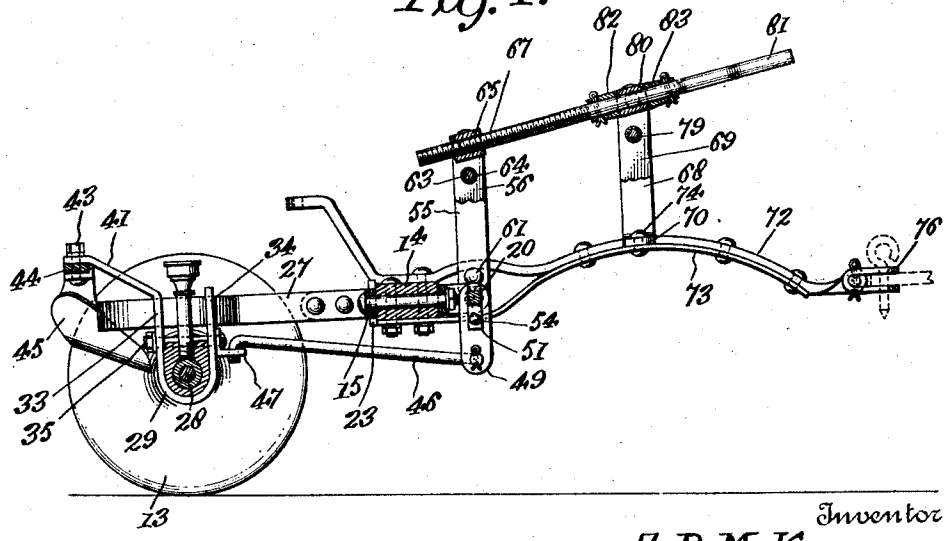


Fig. 4.



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Fig. 5.

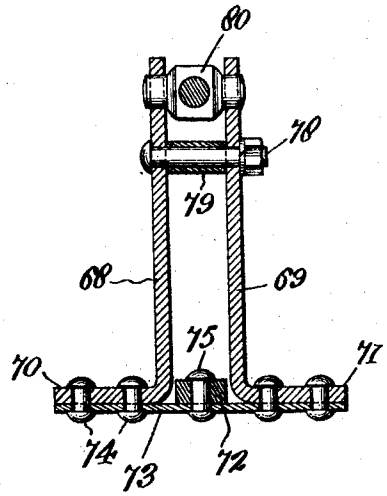


Fig. 6.

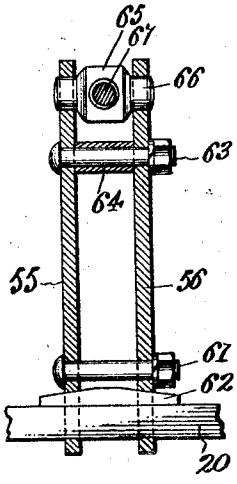


Fig. 7.

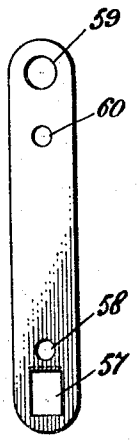


Fig. 9.

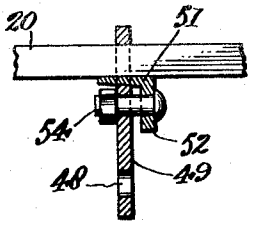


Fig. 10.

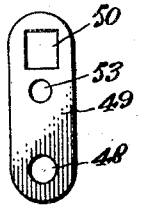


Fig. 8.

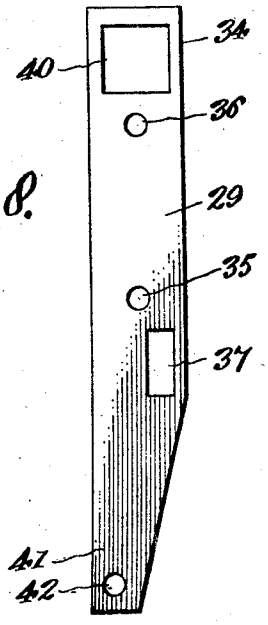
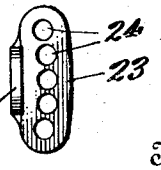


Fig. 11.



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Patented Jan. 5, 1926. 1,568,896

UNITED STATES PATENT OFFICE.

AUGUSTA POSTELLE McKAY, OF ROME, GEORGIA, ASSIGNOR TO TOWERS & SULLIVAN MANUFACTURING CO., OF ROME, GEORGIA, A CORPORATION OF GEORGIA.

DISK HARROW.

Application filed October 20, 1924. Serial No. 744,730.

To all whom it may concern:

Be it known that I, AUGUSTA POSTELLE McKAY, a citizen of the United States, residing at Rome, in the county of Floyd and State of Georgia, have invented certain new and useful Improvements in Disk 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.

The present invention relates to improvements in disk harrows and has for an object to provide a construction which will perform the kind of work ordinarily done by that type of disk harrows known as "tandem harrows", and at the same time embody those features common to the horse-drawn disk harrows known as "reversible harrows" with extension frames and tiltable gangs or disks. It is another object of the invention to provide an improved construction of disk gang assembly in which the gangs will be enabled to partake of both a vertically and horizontally adjusting movement, with means to cause this adjusting movement.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views,

Figure 1 is a top plan view, with parts in section, of an improved disk harrow constructed according to the present invention.

Figure 2 is also a top plan view with the harrow gangs in tilted position.

Figure 3 is a cross section taken on the line 3—3 in Figure 1.

Figure 4 is a similar view taken on the line 4—4 also in Figure 1.

Figure 5 is a section taken on the line 5—5 in Figure 3.

Figure 6 is a similar section taken on the line 6—6 also in Figure 3.

Figure 7 is a side view of one of the arms shown in Figure 6.

Figure 8 is a laid out view of the metal strap for supporting the disk gang.

Figure 9 shows a fragmentary view of the rock shaft with the follower arm in section.

Figure 10 is a side view of the follower arm, and

Figure 11 is a plan view of an adjustable angle iron.

Referring more particularly to the drawings 12 and 13 designate disk harrows arranged reversely with respect to each other and disposed in two gangs arranged at opposite sides of the longitudinal center line of the machine. These gangs are supported from the transverse beam 14 by the use of yokes 15. The connecting bar of each yoke is fitted against the rear face of the beam 14 and a pivot bolt 16 passes through the yoke connecting bar near one end thereof for the purpose of pivotally supporting it to enable it to be adjusted in a substantially vertical plane. The pivot bolt also fits through any one of a number of openings 17 made in the beam 14. The bolt 16 subserves the further function of holding at one end the bracket 18 fitted against the forward face of the beam 14. The bracket is provided with round bearings 19 in which to journal the square rock shaft 20.

The yoke 15 is secured at its other end by the use of rivets or other fastenings 21 to an angle iron 22 having a head 23, shown in Figure 11 provided with a number of vertically arranged perforations 24 to receive the bolt 25 which is also adjustably mounted through a selected opening 17 in the beam. The bolts 16 and 25 normally support the yoke 15 and incidentally the gang of disks in a rigid manner. By removal of the bolt 25, however, the gang and supporting yoke are free to swing about the pin 16 so that the inner harrow disks may be adjusted up or down. The bolt 25 is reinserted after the proper adjustment is made and the parts are then secured in the angular position.

The arms 26 and 27 of the yoke extend backwardly and above the gang shaft 28 and these arms cooperate with straps 29 for sustaining the harrows.

All of the harrow disks in one gang are mounted upon the common shaft 28 with spacing sleeves 29 therebetween. Between certain of the disks are cylindrical brasses or bearings 30 over which are placed the sleeves 31 having the grooves 32 to receive the intermediate portions of the straps 29. The two arms 33 and 34 (see Figures 3 and 4) pass up on opposite sides of the sleeve 31 which is enlarged and squared on its

upper side and these arms are secured in upright position by the use of a bolt 34. The bolt goes through the openings 35 and 36 shown in Figure 8. The strap 29 is provided adjacent the opening 35 with an elongated window or opening 37 for the passage of the rear end of the yoke arm 26, the opening being made of a size to freely admit the yoke arm and to permit of a certain pivotal movement of the strap about the yoke arm. In this connection see Figure 2 where the yoke arm is shown as provided with pins 38 and 39 inserted through the yoke arm and projecting on opposite sides thereof, said pins being to opposite sides of the strap. The pins are intended to hold the strap upon the yoke arm and at the same time to permit of the pivotal movement above referred to.

The other arm 34 of the strap is provided with a lateral enlarged opening 40 inasmuch as this portion of the strap is removed from the center of the circular movement and therefore the opening needs to be large in order to clear the yoke arm 26 at this point. The other yoke arm 27 is slightly longer than the other yoke arm 26 and the rear portion thereof is curved or struck on an arc, the center being the center of rocking movement between the pins 38 and 39. The curved or arcuate part of the arm 27 extends through openings in a second strap which is made precisely as shown in Figure 8 and as just described. The straps are provided with angularly projecting portions 41 and provided with perforations 42 to receive the bolt 43, shown in Figures 3 and 4, whereby the extensions are attached to the rear bar 44 carrying the various scrapers 45 for the disks.

Figures 1 and 2 are comparative views showing the angular swinging movement of the gangs and this movement is accomplished from the rock shaft 20. The gangs are separately connected by links 46 with the rock shaft, the rear end of each link bent downwardly and inserted in an angle clip 47 secured by the bolt 35 against the strap. The forward end of the link 46 is turned transversely and inserted through a perforation 48, said perforation being in the lower end of an arm 49. This arm 49 is secured upon the rock shaft 20 and for this purpose is made with a substantially square or rectangular opening 50 near its upper end. The opening is slightly larger in vertical dimension than the rock shaft to admit the wedge 51, shown in Figure 9 whereby to clamp the arm 49 tightly upon the shaft and to permit sliding of the arm on the shaft when the wedge is removed or eased out.

The wedge is provided with a perforated angle piece 52 to extend parallel with the intermediate portion of the arm 49 which is also perforated as indicated at 53 in registry with the perforation of the angle piece 52. A tightening bolt 54 is engaged through the registering perforations for the purpose of drawing the wedge 51 toward the arm.

The rock shaft is moved by the upstanding arms 55 and 56 arranged parallel and in close relation, both said arms being made as in the side view in Figure 7 with a rectangular opening 57 at the lower end just beneath the perforation 58; while the upper end is provided with a rather large perforation 59 and spaced below it a smaller perforation 60. The arms 55 and 56 are received over the rock shaft 20 and are drawn in opposite directions by the bolt 61, which engages through the perforations 58, upon the double wedge block 62 with oppositely inclined upper faces. In this manner the arms are secured tightly upon the shaft and when swung angularly the arms effect a turning of the shaft. The perforations 60 in the arms are designed to receive the bolt 63 for holding the upper end portions of the arms together and the bolt between the arms receives the spacing sleeve or cylinder 64 to prevent the bolt from drawing the arms tightly upon the rotary bearing block 65 having the trunnions 66 which are rotatably engaged in the upper openings 59 of the arms. The bearing block 65 is threaded to take the thread upon the adjusting shaft 67 which extends in the direction of travel of the machine and is pivotally carried upon the arms 68 and 69 mounted forwardly of the arms 55 and 56. The lower ends of the arms 68 and 69 are provided with outwardly turned feet 70 and 71 straddling the draft beam 72 and lying flat against the substantially triangular plate 73 to which said feet are secured as by the rivets 74. Rivets or other suitable fastenings 75 are also passed through the draft beam and the triangular plate. The plate and beam are curved as shown in Figures 3 and 4 to properly hold the frame of the harrow and to properly couple the device to a tractor which is secured as by the clevis 76.

The rear end of the draw bar is bent upwardly and rearwardly as indicated at 77 and is arranged to receive coupling means for a third gang of disks adapted to travel in back of the two gangs shown and substantially midway of the path thereof.

The arms 68 and 69 are secured together at their upper ends by the bolt 78 having the spacing sleeve 79 therebetween and at their upper ends the arms pivotally carry the bearing block 80 having a plain bore with no thread to receive the plain portion of the adjusting screw adjacent the handle 81 thereof.

To opposite sides of the bearing block 80

are collars 82 and 83 each secured by the cotter pins 84 to the adjusting shaft 67. The construction is such that, through the handle, the adjusting shaft may be rotated but it cannot move axially and consequently the threaded bearing block 65 and the arms 55 and 56 connected to the rock shaft are caused to move. This results in the angular movement of the rock shaft which is communicated through the arms 49 and links 46 to the gang plows. The plows may thus be shifted for instance to the position shown in Figure 2, the intermediate point between the pins 38 and 39 being a center about which the plows may swing in a forward and rearward direction.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims:—

What is claimed is:—

1. A harrow comprising a frame, a supporting yoke adjustable transversely of the frame, and having a pivotal movement about the frame in a substantially vertical direction, means for holding said yoke in various positions of angular adjustment, a disk gang supported pivotally in one portion of said yoke and slidably in the other portion of the yoke, and means on the frame coupled to said gang for sliding the same along the yoke.

2. A harrow comprising a perforated beam, a supporting means, a bolt for selectively entering the perforations of said beam and adapted to pivotally hold said supporting means at one side, adjustable means for holding the supporting means at the other side in various positions of angular adjustment about said bolt, a disk gang carried pivotally at one side of said supporting means and slidably at the other side of said supporting means, said gang adapted to slide substantially horizontally in said supporting means, and adjustable means for causing said sliding movement of the gang in said supporting means.

3. A harrow comprising a perforated supporting beam, supporting means, a bolt for pivotally holding said supporting means selectively in one of said perforations in said beam, a second bolt for selectively entering the perforations of said beam, an extension head on said supporting means having a substantially vertical series of perforations for adjustably engaging the second bolt, a disk gang pivoted for substantially horizontally swinging movement at one side of said supporting means and sliding in the other side of said supporting means, and means for adjustably causing the sliding movement of said gang in said supporting means.

4. A harrow, comprising a frame, a supporting yoke fixed to the frame and having a pivotal movement about the frame in a substantially vertical direction, a disk gang connected pivotally at one side of said yoke and slidably at the other side of the yoke, and means attached to the frame and to said gang for causing the pivotal and sliding movement of said gang in said yoke.

5. A harrow comprising a frame, supporting means adjustable transversely of the frame and having a pivotal movement about the frame in a substantially vertical direction, means for holding said supporting means in various positions of angular adjustment, a disk gang supported pivotally in one portion of said supporting means and slidably in the other portion of said supporting means, and adjusting means on said frame coupled to said gang for sliding and swinging the gang in said supporting means.

AUGUSTA POSTELLE McKAY.