No. 893,682. PATENTED JULY 21, 1908.

R. S. WELLS.

DISK HARROW.

APPLICATION FILED DEC. 15, 1906.

Fig. 3.

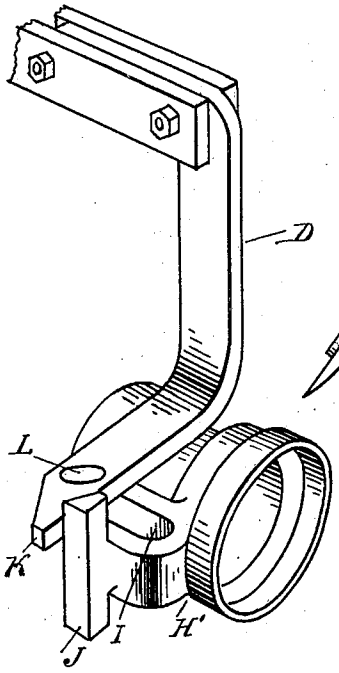


Fig. 1.

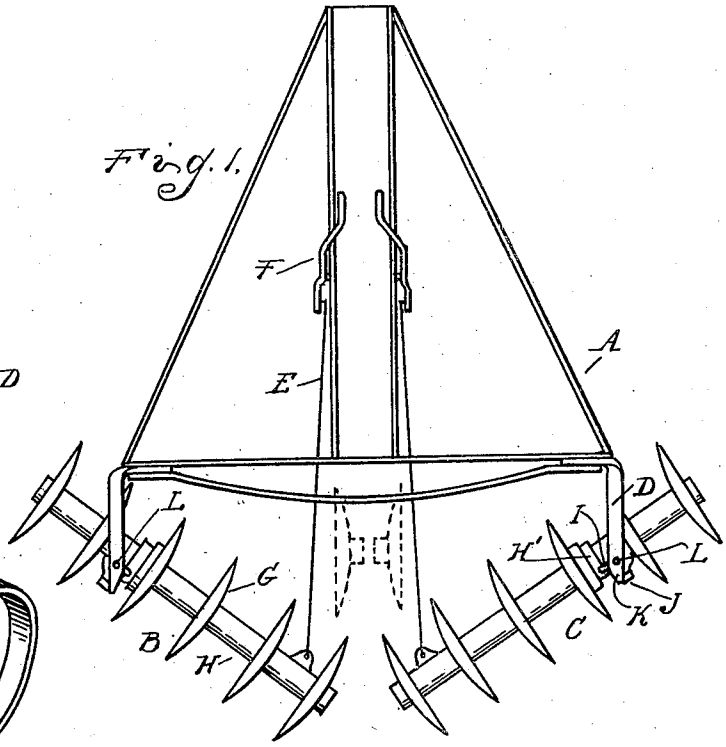
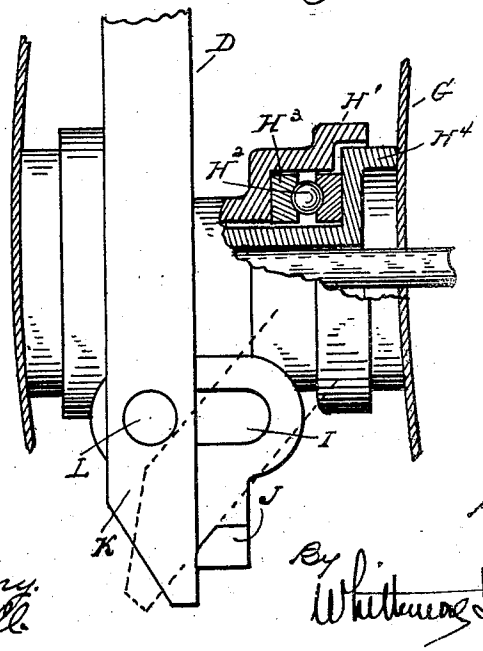


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

ROBERT S. WELLS, OF DETROIT, MICHIGAN, ASSIGNOR TO AMERICAN HARROW COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

DISK HARROW.

No. 893,682. Specification of Letters Patent. Patented July 21, 1908.

Application filed December 15, 1906. Serial No. 348,004.

To all whom it may concern:

Be it known that I, ROBERT S. WELLS, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Disk Harrows, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to disk harrows, and has particular reference to the construction of automatic means for imparting endwise movement to the harrow sections when adjusted angularly in relation to each other, as hereinafter set forth.

In the drawings, Figure 1 is a plan view of the harrow; Fig. 2 is an enlarged section plan of a portion of Fig. 1; Fig. 3 is a perspective view thereof.

In the construction of disk harrows, it is usual to provide a plurality of sections, or separate disk carrying shafts, which are pivotally attached to a common draft frame and are adjustable in relation to each other. When the harrow is in work, these sections are oppositely angled to the line of draft, and the resistance of the ground causes an end thrust of the shafts against their pivotal supports on the frame. At different times, the angular adjustment is varied, and when out of work the sections are in alinement with each other, such adjustment being permitted by the pivotal connection to the frame. It is obvious that in the swinging of the sections out of alinement their inner ends are separated to a greater or less extent, which results in leaving a portion of the ground which is not subjected to the action of the disk.

It is the object of the present invention to have means for adjusting the sections endwise to compensate for their angular adjustment and diminish the separation between the inner ends to as great an extent as possible, while at the same time said sections are held in a position of adjustment, out of contact with each other.

To this end, the construction consists in the means employed for automatically moving the bearings upon which the sections are journaled and pivoted to the frame, and further in the means by which the adjustable member also constitutes an antifriction thrust bearing for the sections.

As illustrated A is the frame, and B and C are two disk carrying sections, which are pivotally attached to the frame by means of depending brackets D.

E are rods for adjusting the sections angularly, said rods being actuated by suitable levers F pivoted upon the frame. Each of the sections B and C consists of a shaft, on which is mounted a plurality of disks G separated from each other by sleeves H. One of these sleeves H′ constitutes a thrust bearing and the pivotal connection between the sections and the bracket D. The thrust is transmitted to the bearing preferably through balls or rolls H^2 and coöperating ball races H^3, which are arranged within the member H′, and receive the thrust from the member H^4 secured to the shaft. Thus, when the shaft is arranged angularly, the stress produced by the resistance of the ground against the disk will be transmitted through the ball bearings, thereby greatly reducing the friction.

To permit of angular adjustment of the shaft, the member H′ is pivotally secured to the depending bracket D, and to provide for the desired longitudinal adjustment of the sections, the pivot engages a slot bearing.

As shown, I is the slot bearing, preferably formed integral with the member H′.

J is a lug projecting from this bearing, and coöperating with an extension K of the bracket D to hold the pivot L at one end of the slot, when the sections are in alinement with each other. When, however, the sections are turned at an angle on the pivot L, the lug J is temporarily withdrawn from contact with the extension K, and the resistance of the ground will cause the member I to travel in relation to the pivot L, until the latter is at the opposite end of the slot. This movement permits the sections to approach each other, and diminish the space between the disks at their adjacent ends.

The movement of the sections back again into alinement will cause the lug J to press against the extension K, which will force the pivot L to its original position in the slotted bearing I. Thus, the angular adjustment of the sections will automatically move them also longitudinally in relation to the pivot on the frame, so that the said sections are always held from contact with each other, but are permitted to approach each other to diminish the space therebetween. It will be observed that this longi-

tudinal adjustment of the sections is effected through the medium of the ball thrust bearings, which diminishes friction.

What I claim as my invention is:

1. In a disk harrow, the combination with a frame, of a disk section, a bearing in which said section is journaled, a pivotal connection between said bearing and frame permitting of adjustment longitudinally of the section, coöperating lugs upon said bearing and frame, one of said lugs forming a fulcrum for the other and effecting a longitudinal adjustment upon the turning thereof.

2. In a disk harrow, the combination with a frame and a plurality of disk sections pivotally attached thereto, a slotted pivot bearing for each section, a pivot on the frame engaging said slotted bearing and coöperating lugs upon said frame and slotted bearing, for the purpose described.

3. In a disk harrow, the combination with a frame and a plurality of disk sections, brackets depending from said frame, depending pivots on said brackets, a slotted bearing on each of said disk sections for engaging the pin on the corresponding bracket and coöperating members J and K, substantially as and for the purpose described.

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

ROBERT S. WELLS.

Witnesses:
AMELIA WILLIAMS,
NELLIE KINSELLA.