

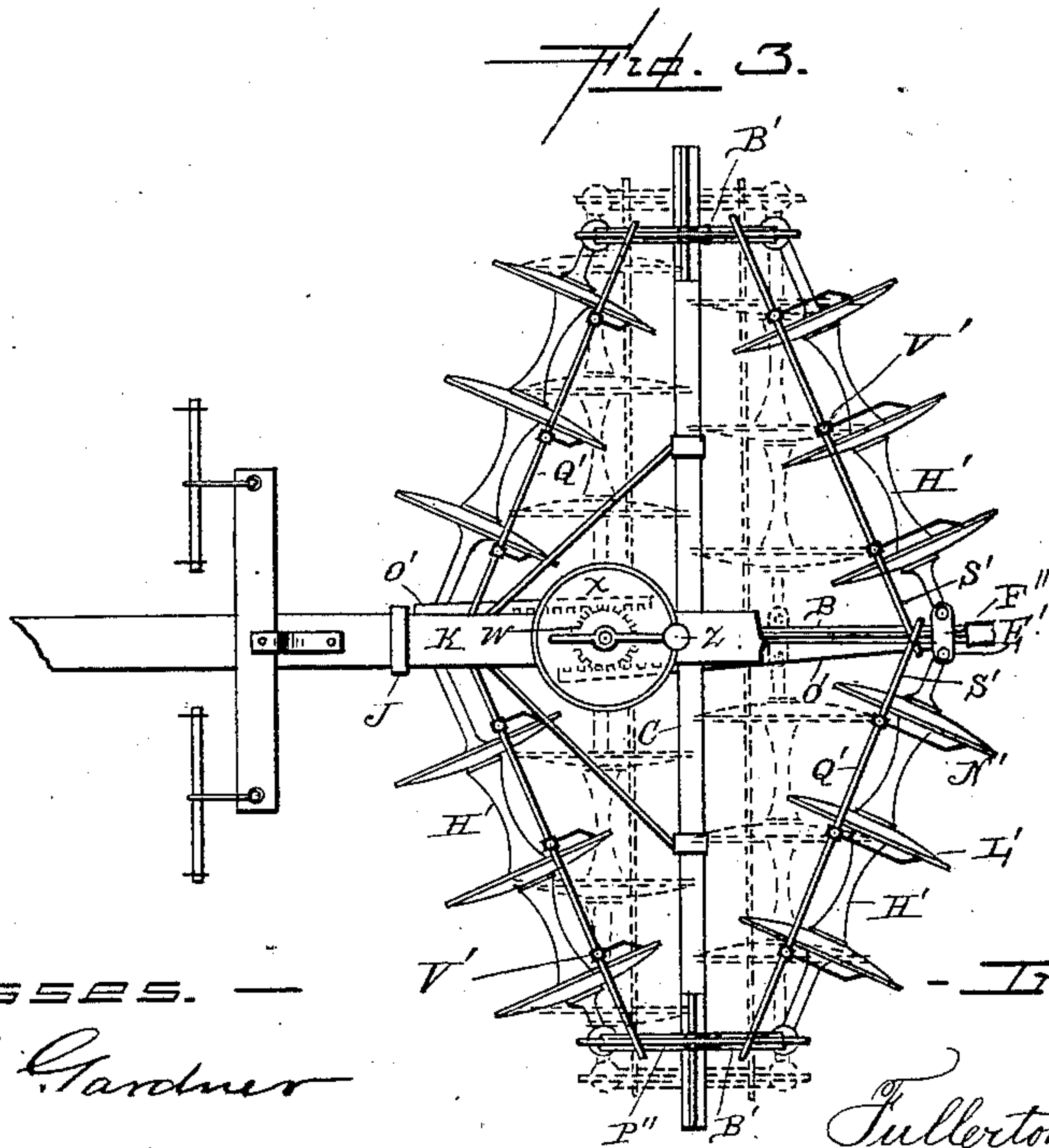
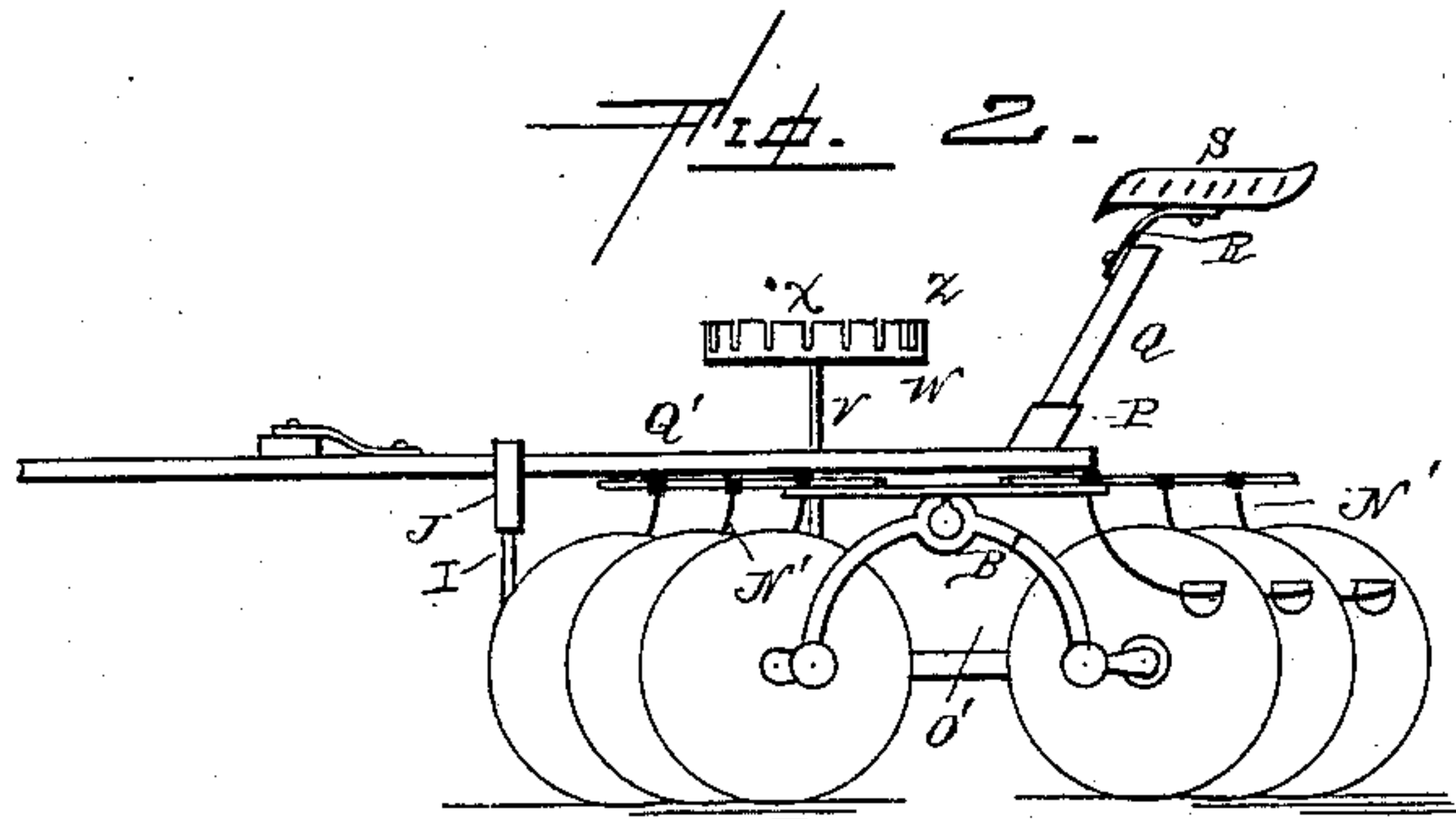
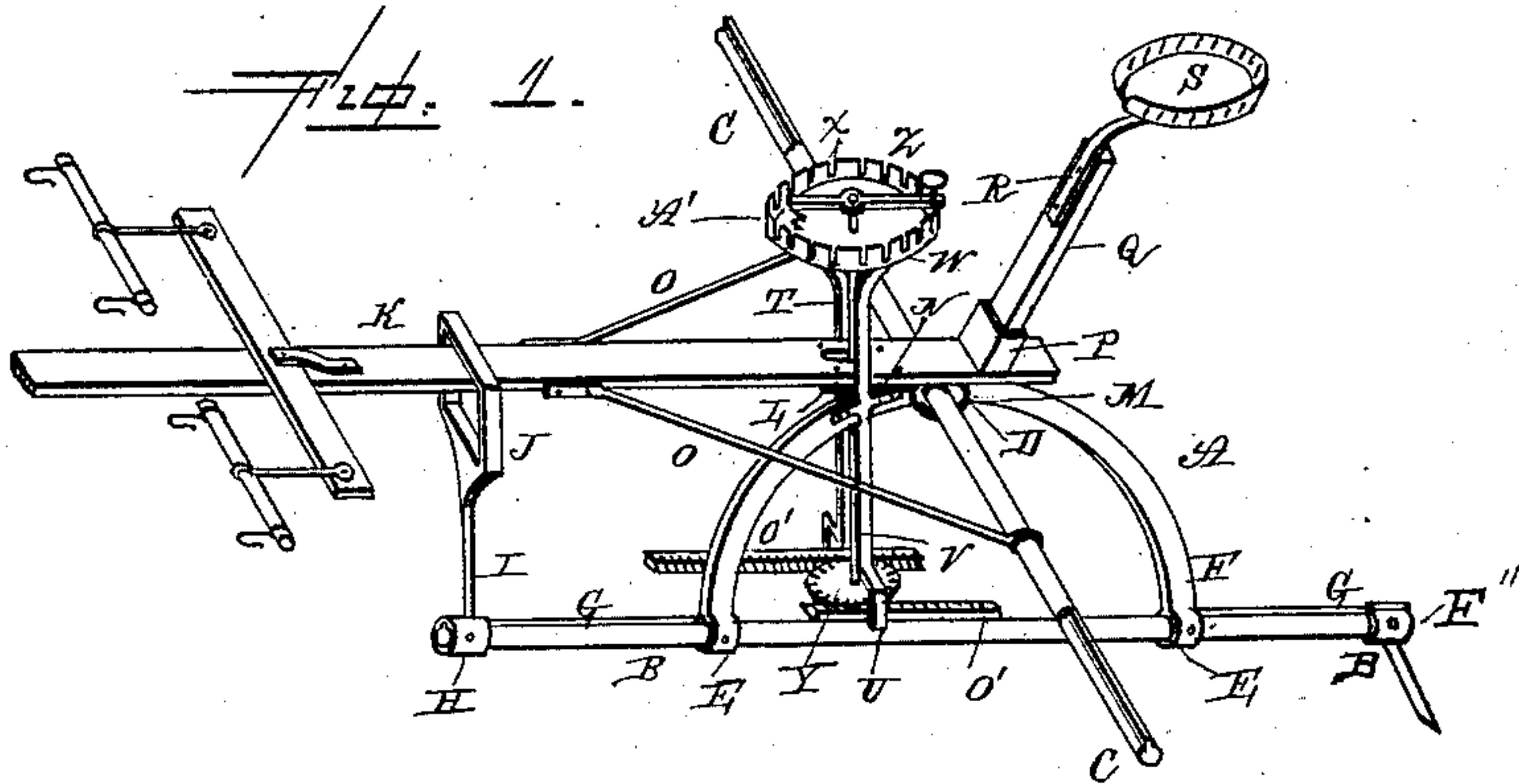
(No Model.)

2 Sheets—Sheet 1.

F. WILSON.
REVOLVING HARROW.

No. 310,105.

Patented Dec. 30, 1884.



—Witnesses.—

Louis F. Gardner

J. W. Gardner

—Inventor.—

Fullerton Wilson

per J. A. Lehmann
Atty

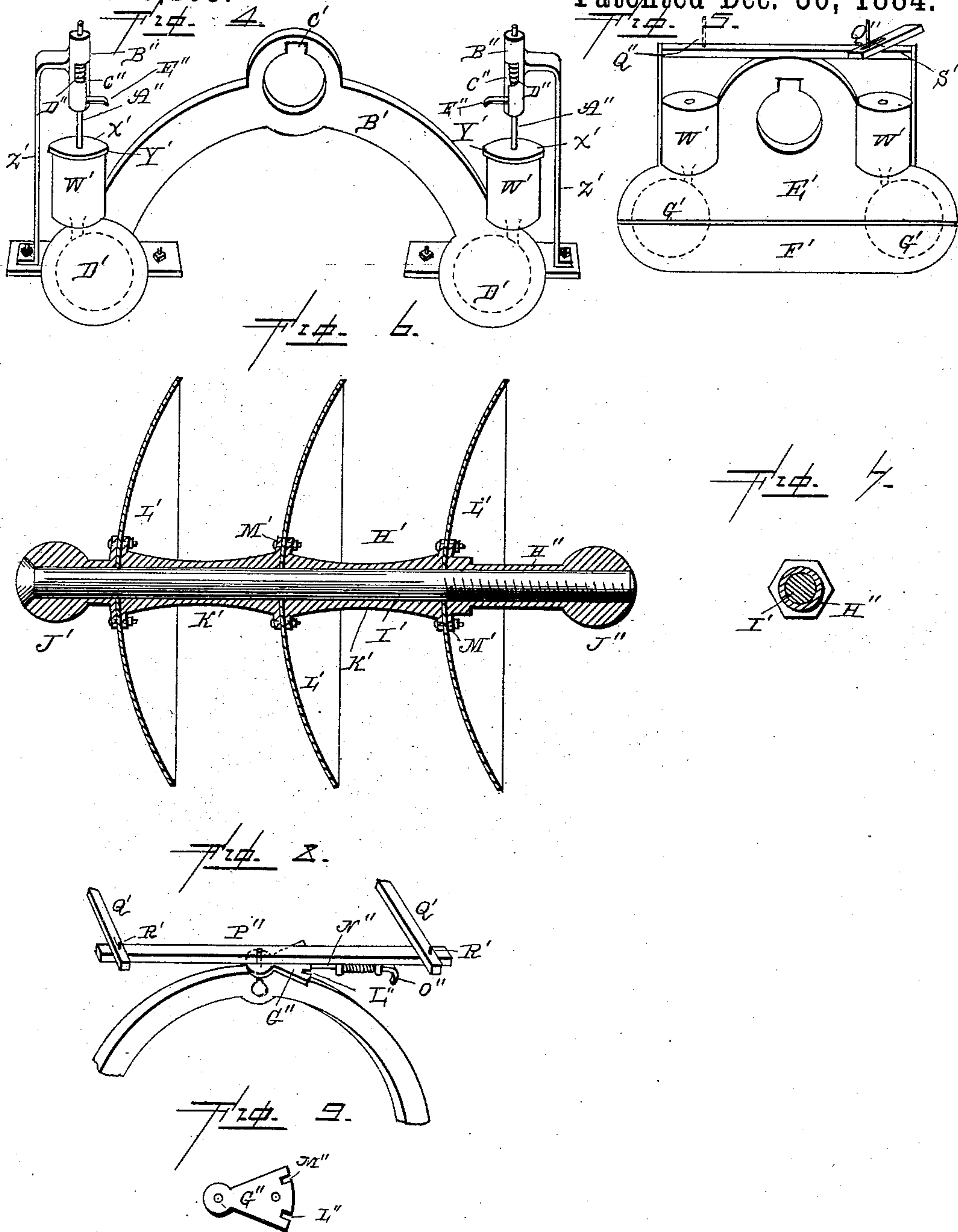
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UNITED STATES PATENT OFFICE.

FULLERTON WILSON, OF WASHINGTON COURT-HOUSE, OHIO.

REVOLVING HARROW.

SPECIFICATION forming part of Letters Patent No. 310,105, dated December 30, 1884.

Application filed May 5, 1884. (No model.)

To all whom it may concern:

Be it known that I, FULLERTON WILSON, of Washington Court-House, in the county of Fayette and State of Ohio, have invented certain new and useful Improvements in Revolving 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in revolving harrows; and it consists in the combination, with a frame of suitable construction, of a number of revolving shafts having circular disks secured thereto, said shafts being journaled in boxes that are adapted to be adjusted upon the frame, so as to enable the shafts to be arranged parallel with each other, or to be set at any desired angle to each other, so as to adapt the harrow to different requirements in performing its work; and it further consists in the combination and arrangement of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective of the frame, showing the tongue and the driver's seat attached thereto. Fig. 2 is a side elevation of my harrow complete. Fig. 3 is a top plan view of the same. Fig. 4 is a detail of one of the brackets with the journal-boxes attached thereto. Fig. 5 is a detail of one of the central journal-boxes. Fig. 6 is a detail, partly in section, of one of the shafts, showing its construction and the means for securing the revolving disks thereto. Figs. 7, 8, and 9 are detailed views.

A represents the frame, which is composed of a shaft, B, a shaft, C, and a central arched connecting-bracket, D, the shafts B and C being arranged at right angles to each other. At the ends of the arms F of the bracket D are formed the sleeves or collars E, through which the shaft B passes, and in which it is secured by bolts. The shaft B extends in the direction of the line of draft, and is provided at its extremities with the splines G. To the front end of this shaft is secured a collar, H, from which rises a standard, I, having a stirrup, J, at its upper end.

K represents a pole which passes through the stirrup, and which has secured to its rear extremity, on the under side, a casting, L. This casting is provided with a transverse collar, M, and bearing-flanges N. The shaft C, which is of the same construction as the shaft B, passes through the collar M and through the central bracket, D, and is bolted centrally in the upper part of said bracket. The flanges N depend from opposite sides of the casting L and secure it upon the upper side of the central bracket, D. It will be seen by this arrangement that the pole is left free to vibrate up and down, being balanced upon the shaft C by the weight of the driver. To the rear end of the shaft B is secured a collar, F', from which depends the tooth G'. Brace-rods O extend from the pole K to suitable points on the shaft C, and thus secure it rigidly in position. By this construction it will be seen that the shafts B C are secured in position at right angles to each other. To the upper side of the rear end of the pole K is secured a metallic socket, P, in which is secured the lower end of a rearwardly-inclined standard, Q. To the upper end of this standard is secured a flat spring, R, which curves backward and has secured to it the seat S.

T represents a shaft, which extends vertically through near the center of the bracket D and through the casting L and pole K. The lower end of this shaft is journaled in a stirrup, U, that is formed integrally with a standard, V. The edges of this standard are secured to the bracket D, and to their upper ends is secured a circular disk, W, having serrations X projecting from its upper side. To the lower end of the shaft T is secured a spur pinion, Y, and to its upper end is secured a latch, Z, that engages with the serrations; and is provided with a spring, A', for retaining it in place therein. B' represents brackets similar in construction to the bracket D, that are secured upon the outer ends of the shaft C. The splines of said shaft enter the grooves C' and prevent the brackets from turning on the shaft, and admit of free lateral adjustment thereon. The lower ends of these brackets are provided with ball-sockets D'.

E' represents boxes that are similarly secured on the ends of the shaft B, and have the pieces F' bolted to their under sides. In

these boxes and pieces F' are made the ball-sockets G'.

H' represents shafts that are composed of the bolt I', the ball-bearings J' J'', and the sleeves K'. This bolt I' passes through the ball-bearings and sleeves, and thus secures them rigidly together. The ball-bearings J'' have longer sleeves H'' than are on the ball-bearings at the opposite ends of the shafts, and these sleeves are provided each with a hexagonal nut made integral with the ball-bearings and flanges. On the sleeve H'' the flanges M' are convex next to the disk, and the flanges on the sleeve of the ball-bearings on the opposite end of the shaft are concave next to the disks. The bolt I' has a screw-thread cut upon one end where it passes through the ball-bearing J''. The hexagonal nut forms means for tightening the sleeve upon the bolt and disks. The disks L', which are concavo-convex in cross-section, are secured between the flanges M' of the sleeves H'' by means of suitable bolts. By this construction it will be understood that the ball-bearings, the sleeves, and disks can be readily detached from each other should it become necessary to replace one of the disks that may have become broken. The ball-bearings J' J'' are secured in sockets D' and G', and thus it will be understood that the shafts H' are rendered capable of adjustment upon the frame, so as to enable them to be worked, as arranged parallel to each other, as shown in dotted lines in Fig. 3, or they may be placed at any desired angle to each other and to the frame, the position in which they will be most commonly used being indicated in solid lines in the said figure.

O' represents racks that are secured at their outer ends to the sliding bearings E', and which extend inwardly along the shaft B and pass between the stirrup U and pinion Y, on opposite sides thereof, the teeth of these racks meshing with the spurs of the pinion. It will be readily understood that by raising the detent-lever Z from the serrations of the disk W, and by rotating the same its motion will be imparted through the shaft T and pinion Y to the racks O', and that the bearings B' E' can be moved forward and backward upon the shafts B C, and thus cause the shafts H', with their devices, to assume any desired position.

P'' represents rods that are pivoted centrally on the upper sides of the castings C'', which castings are bolted on the brackets B'. These castings are provided with notches L'' and M'' on a line drawn through the central bolt of the rods P', and the rods are provided with spring-actuated catches N'', which are provided with thumb-holds O''. To the outer ends of these rods are pivoted the rods Q', as at R'. The inner ends of these rods Q' are slotted, as at S', and through these slots pass pivotal bolts Q'', that secure the inner ends of the rods Q' to the sliding bearings E'.

N' represents scrapers that are secured on the rods Q', and that are provided with set-

screws V', that enable them to be secured to the rods Q' at any desired points. To cause the scrapers to impinge upon the concave sides of the harrow-disks, it is only necessary to press the thumb-holds O'', which withdraws the latches N'' from the notches L''. The rear ends of the rods P' can then be moved toward the center of the machine until their latches catch in the inner notches, M'', thus causing the scrapers to be secured rigidly against the harrow-disks. These disks are concavo-convex in cross-section, and by this arrangement it will be seen that the scrapers will be pushed against the disks of the rear shaft and pulled against the disks of the front shaft, operating upon both rear and front disks at the same time. By reversing the operation above described the scrapers can be readily removed from contact with the disks. By this construction the scrapers can be caused to impinge upon the convex sides of the harrow-disks when working in wet or sticky ground, and thus clear them of adhering earth. When working in dry light soil, the scrapers will not be needed, and can then, if so desired, be entirely removed from the harrow. I provide the bearings B' and E' with oil-cups W'. Caps X', having flanges Y', are placed upon the tops of the oil-cups, to exclude dirt and grit therefrom and prevent injury to the ball-bearings. In order to secure these caps firmly in place, and at the same time admit of their being readily removed when it is necessary to refill the cups, I provide standards Z', which are secured to the bearings, and which have their upper ends curved over, so as to be in a vertical line with the center of the oil-cups. Rods A'' extend outwardly from the center of the caps through sleeves B'', formed on the standards Z'. These sleeves B'' are provided with rectangular slots C''. Coiled extensible springs D'' are placed in the sleeves B'', surrounding the upper ends of the shafts A'', their lower ends bearing on the shoulders formed on said shafts. These springs, as will be readily understood, thus press the shafts A'' downwardly and secure the caps X' firmly in place on the oil-cups.

E'' represents handles or thumb-holds, that extend outwardly from the shafts A'' through the vertical portion of the slots C''. When it is desired to raise the caps from the cups for the purpose of refilling them, it is only necessary to raise the standards A'' by the thumb-holds E'' against the tension of the springs D''. When the thumb-holds reach the upper end of the vertical portions of the slots, they can be turned at right angles into the horizontal portion of the slots, and thus secure the caps in a raised position.

Having thus described my invention, I claim—

1. The combination of the frame having shafts arranged at right angles to each other, with bearing-blocks adjustably secured to the ends of the shafts, and shafts journaled in the

bearing-blocks, said shafts being provided with circular disks, for the purpose set forth, substantially as described.

2. The combination of a frame composed of shafts arranged at right angles to each other, bearing-blocks adjustably secured on the ends of said shafts, shafts having rotating disks journaled in said bearing-blocks, and mechanism for adjusting the blocks, for the purpose set forth, substantially as specified.

3. The combination of the shafts B C, a suitable device for securing them together, blocks B' and E', shafts H', having disks L', shaft T, pinion Y, crank Z, and rack-bars O', secured to the blocks E' and meshing with pinion Y, substantially as shown and described.

4. The combination of the shafts B C, casting D, for securing them together, standard I, having stirrup J, pole K, secured to a casting supported on the upper side of the casting D, bearing-blocks B' and E', shafts H', having disks L' journaled in said blocks, and mechanism for operating the blocks upon the shafts, for the purpose set forth, substantially as shown.

5. The combination of the shafts B C, casting D, for securing them together, bearing-blocks B' and E', adapted to be adjusted on said shafts, mechanism for adjusting them,

shafts H', having disks, said shafts being journaled in the blocks B' and E', rods P', pivoted to the castings B', rods Q', for connecting rods R' with the blocks E', and scrapers N', adapted to be adjusted upon the rods Q', substantially as set forth.

6. The combination of the bearing-blocks B' and E' with the cups W', caps X', standards Z', shafts A'', and sleeves B'', springs D'', slot C'', and handle E'', for the purpose set forth, substantially as shown and described.

7. The combination of the shafts arranged at right angles to each other, a device for securing them together, bearing-blocks secured to and adapted to slide upon the ends of the shafts, mechanism for adjusting said blocks, shafts having their bearings in said blocks, and provided with circular harrow-disks, scrapers adapted to be moved so as to impinge upon the harrow-disks or to be removed therefrom, and mechanism for adjusting them, substantially as described.

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

FULLERTON WILSON.

Witnesses:

C. H. MURRAY.

FRANK A. CHAFFIN.