

E. FOWLER.
DISK PLOW.
APPLICATION FILED MAY 28, 1904.

952,895.

Patented Mar. 22, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

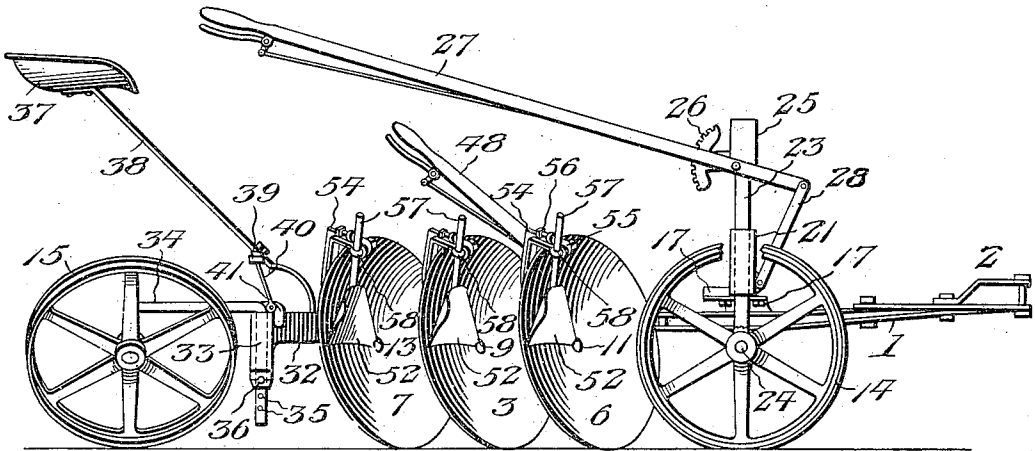
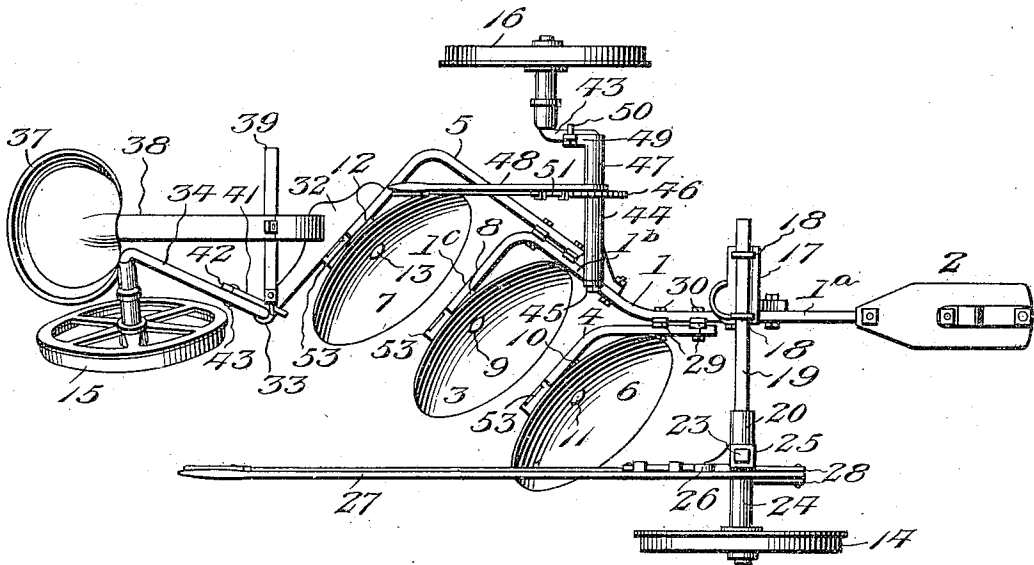


Fig. 2.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 3.

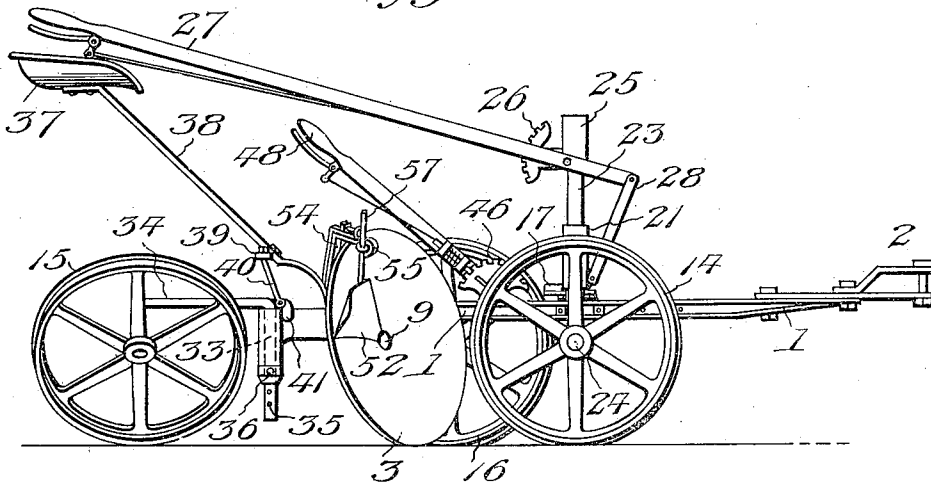
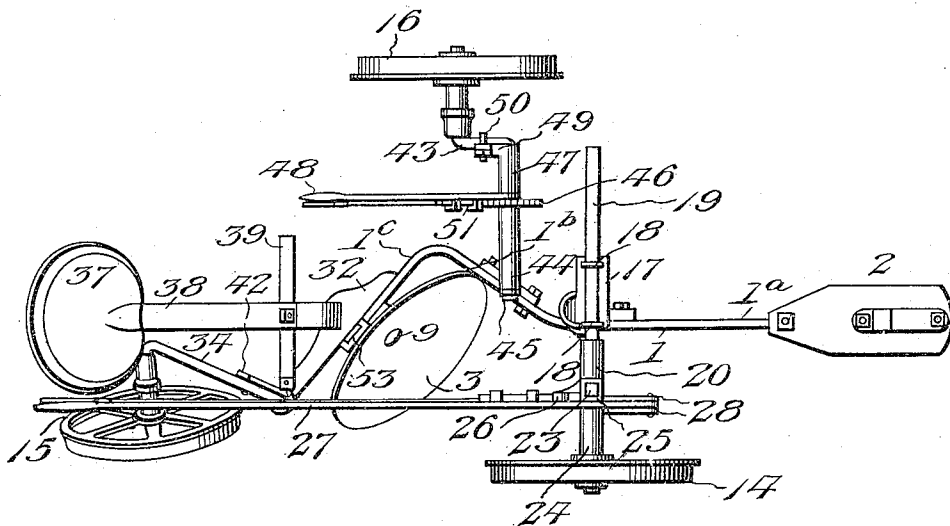


Fig. 4.



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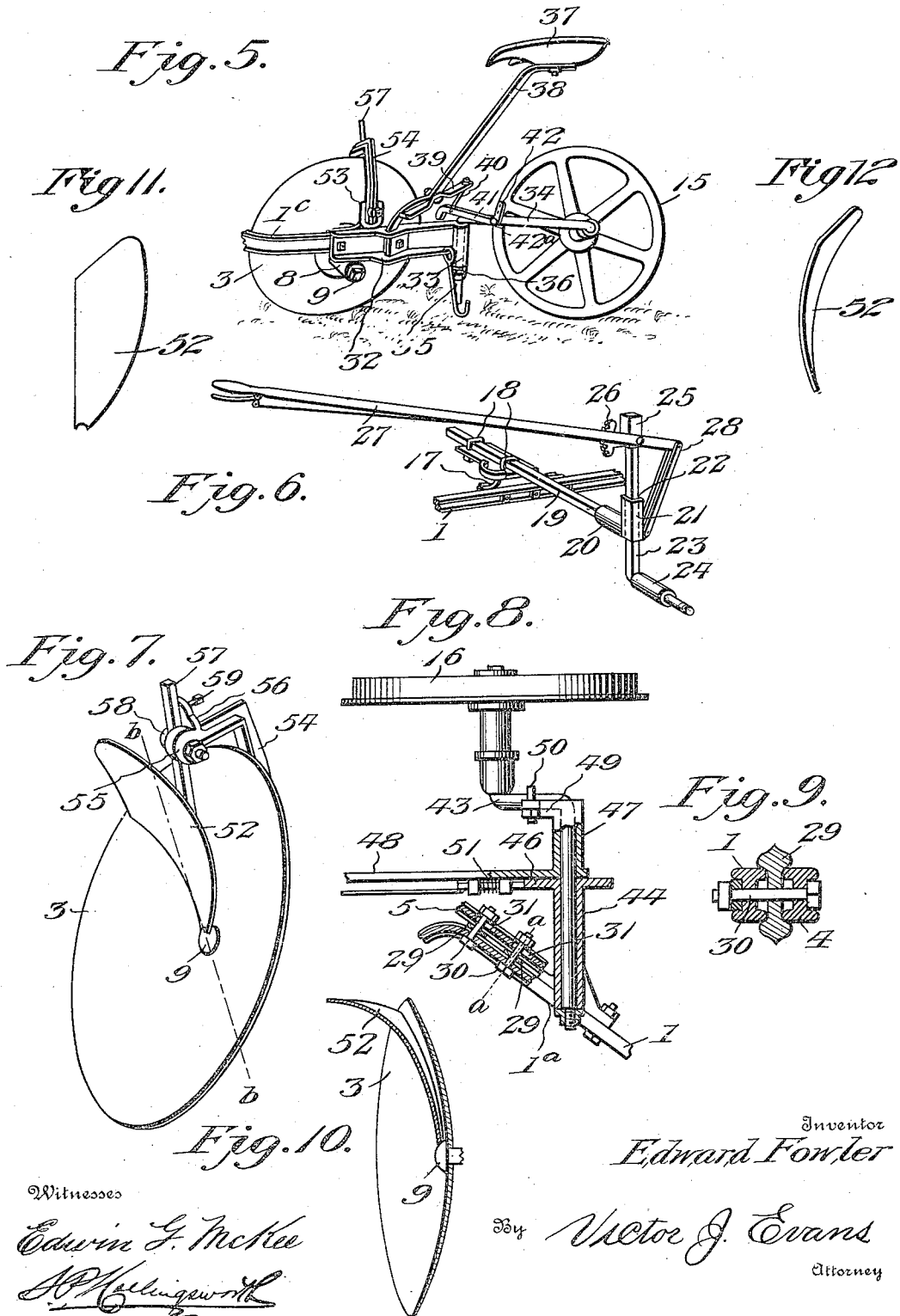
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

EDWARD FOWLER, OF CEDAR GROVE, GEORGIA, ASSIGNOR OF ONE-SIXTH TO OTY T. SIMMONS, ONE-SIXTH TO JESSE L. SIMMONS, AND ONE-SIXTH TO BYRON V. KELL, ALL OF CEDAR GROVE, GEORGIA.

DISK PLOW.

952,895.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed May 28, 1904. Serial No. 210,257.

To all whom it may concern:

Be it known that I, EDWARD FOWLER, a citizen of the United States, residing at Cedar Grove, in the county of Walker and State of Georgia, have invented new and useful Improvements in Disk Plows, of which the following is a specification.

This invention relates to plows, more especially to that class which use disks in place of plowshares for turning over the ground, and which may also be converted from single to gang plows.

One object of my invention is to simplify the construction of the frame and the means for attaching supplementary beams to the main beam, whereby the drag of the plowing disks is divided equally on opposite sides of the line of draft, thus doing away with the more or less complicated and intricate devices to which the draft animals are attached.

Another object of my invention relates to the means for locking the swiveled or rear furrow wheel against swinging movement in one direction only, and to devices for operating said locking means at the will of the driver.

A further object of invention resides in the scrapers for cleaning the plowing disks from adhering earth and causing the ground, raised by the disk or disks, to be completely turned so that any grass, stumps of previous growth and other refuse matter will be entirely covered.

Other objects of invention not above enumerated but which consist of novel features of construction, combination and arrangement of elements will be hereinafter described and claimed.

In the accompanying drawings:—Figure 1 represents a side elevation of my improved disk plow arranged as a gang plow viewed from the furrow side. Fig. 2 is a plan view of the same with the disk scrapers removed. Fig. 3 is a view of the furrow side of my invention adjusted to plow a single furrow. Fig. 4 represents the same as viewed in plan without the disk scraper. Fig. 5 is a perspective land side view of a portion of the plow shown in Fig. 3. Fig. 6 is a perspective view of the adjusting mechanism for the forward furrow wheel. Fig. 7 is a per-

spective view of one of the disks and its scraper. Fig. 8 is a plan view partly in section of the land side wheel, its adjusting mechanism and a portion of the main frame in section. Fig. 9 is an enlarged cross sectional view on the line *a—*a**, of Fig. 8. Fig. 10 represents a sectional view through a plowing disk and its scraper on the line *b—*b** of Fig. 7. Figs. 11 and 12 are detail views of the scraper.

Similar numerals indicate the same parts in all the figures.

Referring first to Figs. 1 and 2, the main beam, shown at 1, carries the draft connections 2 and the primary plowing disk 3. Secondary beams 4 and 5 are bolted to the main beam on opposite sides thereof and carry the respective disks 6 and 7. The main beam 1, made in the peculiar form shown in Fig. 2 comprises a straight portion 1^a in the line of draft, a portion 1^b deflected toward the land side, and a portion 1^c turned at a right angle to the portion 1^b toward the furrow-side. To the end of the portion 1^c, a bracket 8 is secured in which the pivot 9 of a plowing disk 3 is screwed or otherwise fastened. The secondary beam 4 is bolted to the furrow-side of the straight portion 1^a of the main beam just before it turns to form the portion 1^b. It extends rearwardly a short distance and is then bent to lie parallel to the portion 1^c of said main beam. A bracket 10 similar to the bracket 8 is carried by the end of the beam 4 for the bearing pin 11 of a plowing disk 6. The secondary beam 5 is of right angular shape, one arm of which is in line with and bolted on the land side of the portion 1^b near its end, while its other arm lies parallel to the portion 1^c of the main beam and, like it, is provided with a bracket 12 supporting the bolt 13 of a plowing disk 7.

The manner of connecting the secondary beams 4 and 5 to the main beam 1 is clearly represented in Figs. 8 and 9. As there shown, narrow separating blocks 29 are placed between the main and each secondary beam, through which parts a bolt 30 is passed and secured by means of a washer and nut as shown. The separating blocks 29 are widened above and below the beams to form shoulders against which said beams

bear, the latter being made of I or other well known commercial shape of bar. The bolt holes 31 in the secondary beams are elongated somewhat to permit of adjustment.

The beams and plowing disks are supported on three wheels 14, 15, and 16. The wheel 14 is the forward furrow wheel and travels in the furrow previously turned by the plowing disk 7. 15 is the rear furrow wheel which is swiveled to the frame and runs in the furrow turned by the disk 3 when the plow is at work. The wheel 16 moves over the unplowed ground. The furrow wheel 14 is mounted on the straight portion 1^a of the main beam, and is adapted to be placed in one of two positions thereon, its position depending on whether one or more disks are in use. The main beam 1 is vertically adjustable on the furrow wheel 14, the means therefor and for securing the furrow wheel to the beam will now be described.

A bracket plate 17 bolted to the main beam 1 projects toward the land-side for a short distance, its upper surface being substantially horizontal. Fastened to the upper surface of said bracket, crosswise of the main beam, by means of yoke staples 18, is a bar 19, preferably square in cross section to which is attached on its furrow-side end a bracket 20, having a vertically disposed sleeve 21 perforated by a hole 22—see Fig. 6. The bar 19 may be linearly adjusted, or entirely removed from the bracket plate 17 by loosening the yoke staples 18. Through the vertical hole 22 in the sleeve 21 is passed an L-shaped standard 23, preferably square, its lower horizontal portion 24 carries the furrow wheel 14, while to its upper end above the sleeve 21 is fastened a cap or socket 25 having a notched latch plate 26. A rearwardly extending operating lever 27, having a latch to engage the notched plate 26, is pivoted to the cap 25, the short arm of said lever, forward of its pivot, being connected to the socket 21 by means of link bars 28. When the lever is raised and lowered, the main beam through the medium of the bar 19 is depressed or elevated.

Bolted to the secondary beam 5 immediately behind the plow-disk 7 is a casting 32, forming a part of the plow frame which casting extends beyond the outer edge of the plowing-disk and terminates in a vertical socket 33 which forms a bearing for the arm 34 carrying the swiveling or caster wheel 15. The journal end of the arm 34 passes through and below the socket 33 and has formed therein a number of vertically placed holes 35 for a pin 36 by means of which the rear of the plow may be raised or lowered. 37 indicates the driver's seat and 38 the seat post bolted to the casting 32 as shown most clearly in Fig. 5. A foot rest 39 is pivoted at its center on the seat post, from one end of which foot rest a link

40 extends to a hook-shaped latch 41, pivoted to the arm 34. Normally, the hook-shaped latch 41 engages the casting 32—see Figs. 1 and 2—in such manner that the rear furrow-wheel 15 is prevented from turning to the right, but its movement to the left is unrestrained. This arrangement tends to hold the plow in a straight line, but when the ends of the furrows are reached the furrow wheel 15 swings freely to the left thereby enabling the plow to make a short turn in the same direction and start a new series of furrows. The furrow wheel 15 may however be turned to the right by pressing the foot lever on the left of its pivot, raising the hook-shaped latch 41 from its connection with the casting and free the furrow wheel. The hook-shaped latch 41 has an upward projection 42 on its pivotal end, perforated as indicated in Fig. 5, through one or the other of which perforations the pivot bolt 42^a is inserted when the arm 34 is raised or lowered to compensate for the changed position of the parts by such movement.

The land wheel 16 is mounted on one end of a doubly bent axle 43 comprising two parallel portions extending in opposite directions and connected by an intermediate section as shown in several figures, particularly in Fig. 8, where it will be seen that the outer portion forms the axle for the land wheel while the inner portion is journaled in a bracket 44 bolted to the main frame 1 and held thereon by a nut 45. A curved latch plate 46 is formed on the outer end of the bracket 44 beyond which is a sleeve 47, independent of the latch plate, through which the axle 43 passes, said sleeve having an operating lever 48 and an arm 49 in which latter is seated the intermediate portion of the axle 43 connected thereto by a yoke bolt 50. A movement of the lever 48 will cause the axle 43 to rock in its bearing and change the height of the plow frame with respect to the land wheel 16. The operating lever 48 carries a latch 51 which engages the latch plate 46 and holds the plow frame in position after its adjustment.

The plowing disks 3, 6 and 7 are of the usual concavo-convex form with their axes placed at angles to the horizon and the line of draft. For the purpose of keeping the concave surfaces of the disks clean, they are each provided with an adjustable scraper 52 such as represented in Figs. 1 and 7. Affixed to each beam behind the plowing disk is a bracket 53, to which is bolted an arm 54 that extends over the top of the disk and ends in a boss 55 and an upstanding plate 56. From the back of the scraper 52 a rod 57 reaches upwardly through an eye bolt 58 by means of which it is fastened to the boss 55. In setting the scraper, it is pressed by hand as closely as possible against

the disk. Should the scraper not bear with sufficient force against the disk, the pressure may be increased by means of a bolt 59 screwed in the upstanding plate 56 and bearing on the scraper rod 57.

So far as I am aware, disk plows have not been successfully used in sod land owing to some defect or deficiency in the scraper which prevents it from turning the sod completely over as is necessary to produce the best results. To overcome this difficulty, I have constructed the novel form of scraper shown in the drawings, more especially in Figs. 7 and 10, wherein it will be seen that the lower edge of the scraper 52, which reaches from the pivot bolt of the plowing disk to its edge, is curved to fit the inner surface of said plowing disk, its upper edge is longer and projects beyond the periphery of the disk, it also has a greater curvature than the lower edge. The shape of the body of the scraper is a most important point and is clearly shown in Figs. 7 and 10 wherein it will be seen that beginning at the pivot bolt, the curvature of the scraper is at first slight but it gradually increases toward the outer corner (see Fig. 10) in such manner that sod earth and earth covered with weeds and the remains of previous growths raised by the plowing disk will ride up the scraper and, through its novel shape, be completely inverted. The lower inner corner of the scraper which has a slight incurve, partly covers the pivot bolt and prevents the entrance of foreign matter to the bearing.

The plow hereinabove described consists of a gang plow with three plowing disks. This number may, if desired, be increased or diminished. In Figs. 3, 4 and 5, a plow with a single disk is shown. This arrangement is produced by removing the secondary beams 4 and 5 with their plowing disks 6 and 7 and bolting the casting 32 and its attachments to the portion 1^c of the main beam 1. The furrow wheel 14, when used with three plowing disks, is so placed that it travels in the furrow formed by the plowing disk 7 during its previous movement. When the change is made from a gang plow to a single plow, this furrow wheel 14 would, if its position were not changed, extend too far to the right to enter the previously formed furrow. To overcome this difficulty, the casting 17 is disconnected from the beam 1 and moved rearwardly, its fastening bolts passing through the holes in said beam through which the bolts 30 of the secondary beam 4 are passed when the latter beam is used. The yoke staples 18 are also loosened and the bar 19 pushed toward the casting 17 until the furrow wheel 14 enters the furrow previously formed by the disk 3. This adjustment gives a compact and easily operated plow

and one in which but slight change need be made in the draft devices, as is necessary in other plows known to me.

The plow disks, as is well known, become worn by use and their diameters reduced. It is, therefore, necessary to lower the main frame to compensate for the wear. The lowering of the forward end of the frame is accomplished by operating the levers 27 and 48 in well known manner. At the rear end it will only be necessary to remove the bolt 36 and raise the arm 34 to the position desired and return the bolt 36 into one of the other holes 35. The pivot of the latch 41 must also be changed to compensate for this raising of the arm 34, which is quickly done by withdrawing its pivot 42, dropping the latch 41, and placing the pivot in one of the other holes in the projection 42.

I do not claim broadly the idea of mounting the scraper upon a pivoted arm; the advantage of the means which I disclose for supporting the scraper arises from the location of the pivot in a plane that is substantially horizontal and also substantially parallel to the plane of the disk so that as the bar swings, the scraper is moved bodily toward the disk and the curved edge of flat section continues to contact with the disk; any change of parallelism between the worn edge and the face of the disk being in the direction to present a sharper scraping edge to the disk. The scraper is preferably located so that it extends from about the center of the disk to the periphery thereof and in order that it may not be removed too remotely from this position, the scraper arm is made longitudinally adjustable in the bolt which secures it so that the scraper can be located in the right place originally and the shortening which develops by continued wear of the edge may be compensated.

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

1. In combination with the disk of a disk plow, a support therefor, a bolt carried by said support in a substantially horizontal plane and also in a plane substantially parallel with the plane of the disk, and a scraper having an arm secured by said bolt to the support and adapted to have swinging adjustment on the bolt whereby to move the entire scraping edge of said scraper to or from the face of said disk, said scraper arm being adapted to have vertical adjustment through the means of said bolt whereby to move said scraping edge toward the outer edge of said disk.

2. In combination with the disk of a disk plow, a support therefor, a bolt carried by said support in a substantially horizontal plane and also in a plane substantially parallel with the plane of the disk, a scraper having an arm secured by said bolt to the support and adapted to have swinging ad-

justment on the bolt whereby to move the
entire scraping edge of said scraper to or
from the face of said disk, said scraper arm
being adapted to have vertical adjustment
5 through the means of said bolt whereby to
move said scraping edge toward the outer
edge of said disk, and a lug formed on the
upper end of said disk support and pro-
vided with a set screw adapted to impinge
10 against the upper end of said scraper arm,

whereby to bring the scraping edge of the
scraper into contact with the face of said
disk.

In testimony whereof, I affix my signa-
ture in presence of two witnesses.

EDWARD FOWLER.

Witnesses:

HOLBERT CATRON,
WILLIAM T. FRAZIER.