No. 624,118.

Patented May 2, 1899.

W. STEPHENSON.

DISK SEED DRILL.

(Application filed Dec. 19, 1898.)

(No Model.)

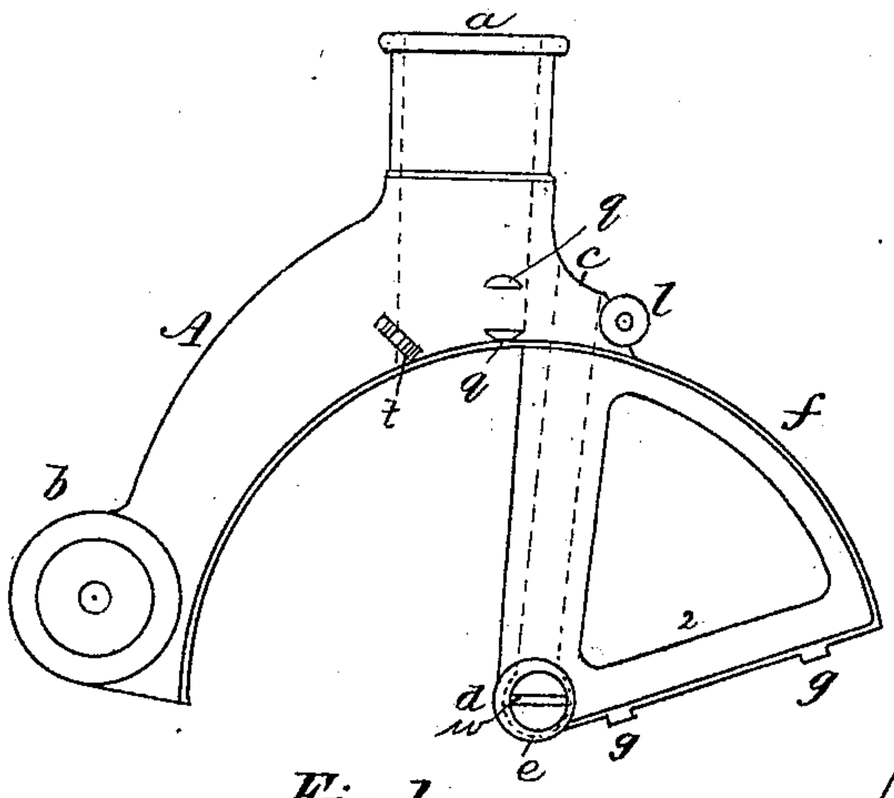

Fig. 1.

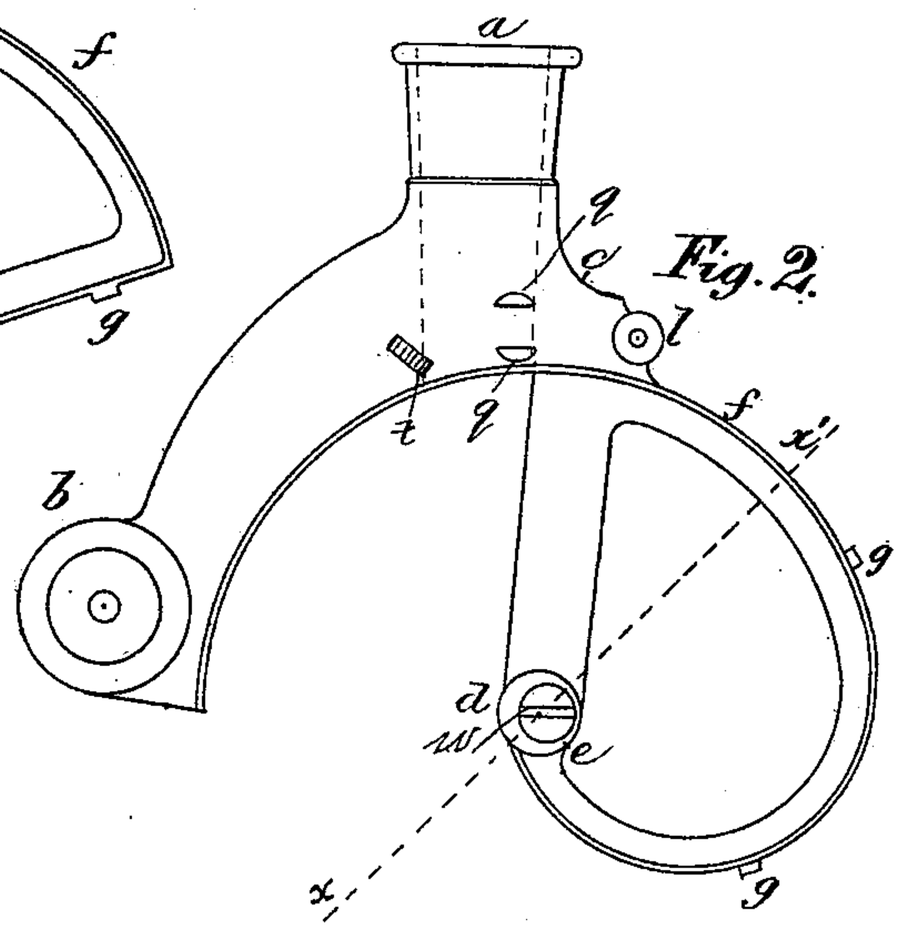

Fig. 2.

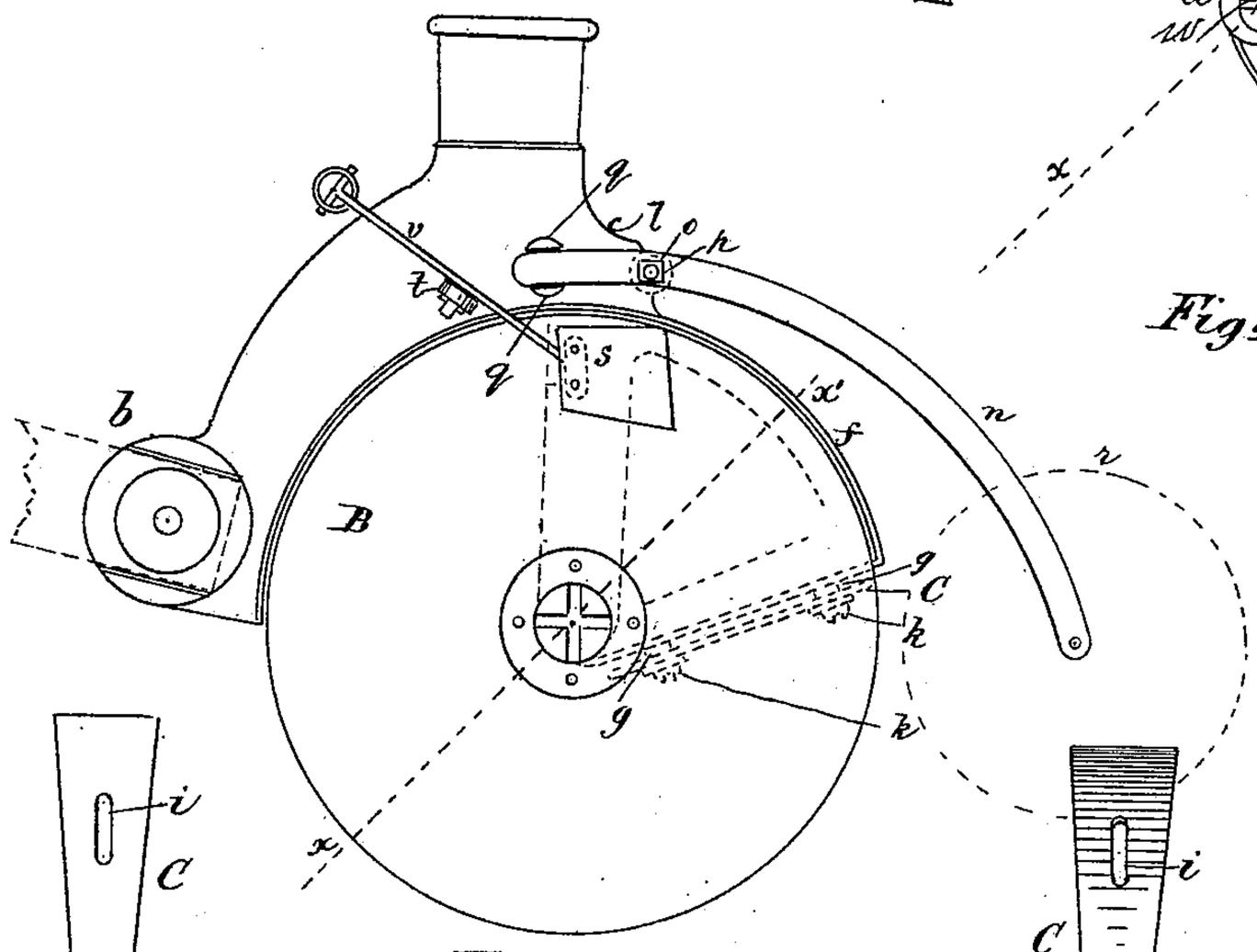

Fig. 3.

Fig. 5.

Fig. 6.

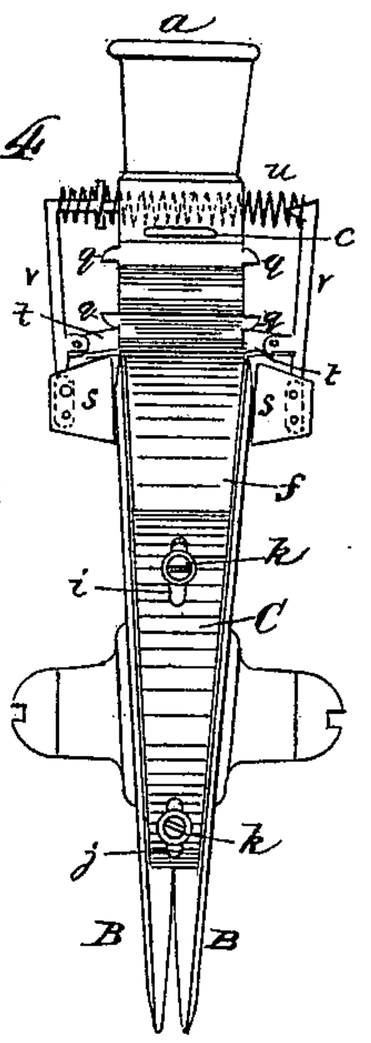

Fig 4

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UNITED STATES PATENT OFFICE.

WILLIAM STEPHENSON, OF MORRIS, CANADA.

DISK SEED-DRILL.

SPECIFICATION forming part of Letters Patent No. 624,118, dated May 2, 1899.

Application filed December 19, 1898. Serial No. 699,783. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM STEPHENSON, a citizen of the Dominion of Canada, residing at Morris, in the county of Provencher, in the Province of Manitoba, Canada, have invented certain new and useful Improvements in Disk Seed-Drills; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same.

The invention relates to further improvements in disk seed-drills, for which Letters Patent of the United States were granted to me on the 10th day of May, 1898, Nos. 603,862 and 603,863.

My present improvements in drills relate, first, to the improved construction of the bearings and the position of the inner or central scraper, by which the noise caused by the position of my former vertical scraper impinging against the disks is avoided and rendered perfectly noiseless, with less friction on the disks and scraper, which causes them to wear longer; second, improved construction of the grain-spout casting by which to conveniently secure arms for a press-wheel or drag-chain to cover the seed when deposited, and, third, the oil-slots on the outer end of the tapering axles are cut horizontally instead of vertical, as in my former construction, in order to facilitate the exudation of the oil from the oil-reservoir to the axles.

The first improvement consists in constructing an arm on the rear of the grain-spout casting and connecting the upper portion of the same with the lower part to afford a strong and durable bearing for the central or inner scraper at an angle below the line of the widest part of the disks, by which means the disagreeable noise caused by the inner scraper when vertical is avoided and the rotation of the disks rendered perfectly noiseless.

Second. A projection is formed on the rear of the grain-spout, having a bolt-hole in it by which to secure two arms, and two lugs on each side of the grain-spout to receive the inner end of each arm for the purpose of a convenient bearing to attach a press-wheel or drag-chain at the outer end to cover the seed after it is deposited by the seed-drill.

Third. The oil-slots in the ends of the tapering axles in my former construction were vertical, which was somewhat objectionable, inasmuch as they would sometimes become clogged with some kinds of oil. The slots are now cut horizontally, which allows the oil to flow more freely to lubricate the axles.

I attain these objects by mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the grain-spout casting as now constructed. Fig. 2 is a similar view showing the lower portion of the scraper-frame curved instead of straight, as in Fig. 1. Fig. 3 is a side view of the device with disks, side scrapers, and press-wheel arms connected. Fig. 4 is a rear elevation of the same. Fig. 5 is an elevation of the inner scraper. Fig. 6 is a similar view of the same when curved.

In the drawings, A represents the grain-spout casting as now constructed, in which *a* is the top opening for the entrance of the seed.

b is the projection to which to fasten the draw-bars.

c is the oil-conduit.

d is one of the two tapering axles to receive the disks B, as in Fig. 2.

e is the oil-reservoir at the bottom of the oil-conduit *c*.

f is the rear bracket-frame connecting the upper part of the oil-conduit with the lower part. *g g* are projections on the lower portion of said frame to which to attach by cap-screws *k k* the inner central scraper C, as shown in dotted lines in Fig. 3, the screws being made to pass through slots *i j* of the scraper into the projections *g g* below the widest part of the disks, which part is represented at the dotted line *x x'* in Fig. 3, and it will be seen that when the said scraper C is placed at the angle mentioned it is noiseless, which is not the case when it is vertical unless continually oiled. It will be seen that the frame *f* for carrying the said inner scraper C is shown with a straight diagonal line on its lower portion—that is, from the bottom of the oil-conduit to the curved portion of the arm—and when so constructed the scraper C is straight to conform to the same angle. However, the said oblique portion 2 of the frame may be curved in circular form, as seen in Fig. 2, without altering the essential feature of my construction, and when so curved the scraper C is bent to conform thereto, it being still a

little lower than the widest part of the space between the disks, (shown at dotted lines $x\,x'$,) and possesses the advantage of operating perfectly in wet ground and is self-cleaning in operation and adjustable to the wear in proportion from center of the disks to the outside, while the diagonal one has equal advantages, except in wet ground, and is cheaper to manufacture.

It will be then seen that whether a straight or a curved central scraper is used it is placed below the line joining the center of the disks and the point where they are most widely separated and that the scraper in either case diverges outwardly from the said line, as is clearly shown in Fig. 3. This prevents noise and aids the scraper in cleaning itself of the mud.

l is a circular projection cast on the rear of the upper part of the oil-conduit *c*, having a bolt-hole through it by which to bolt the press-wheel arms *n*, one on each side, by the bolt *o*, secured by a nut *p*, while their inner ends pass between lugs *q q*, cast on the sides of the grain-spout, as shown, to hold them firm. *w*, Figs. 1 and 2, are horizontal oil-slots cut in the axles. The dotted line *r* represents a press-wheel secured on the outer end of the said arms *n* by a bolt made to pass through a corresponding hole in each arm. A press-wheel or the ordinary covering-chain may be attached to the outer ends of the said arms, as desired by the operator.

It will be seen that the diagonal dotted line $x\,x'$, Fig. 3, shows the points of contact of the disks at *x*, which is the cutting edge, and the upper end of the line, at x', shows where the disks are widest apart, and it is below that point that the central or inner scraper C is placed, where it will be noiseless when the disks are rotating on their axles. It will also be observed that the side scrapers *s* are operated the same as shown in my former patents, only they are elongated somewhat and their tops made to stand at or about the outer periphery of the disks, as shown at Fig. 3, and made to press upon the disks by levers *v*, pivoted to the lugs *t*, their outer ends bent and made to press outward by a spring *u* on their bent ends, which causes the said scrapers *s* to impinge on the disks and keep the cutting edges clean. It will also be observed that the disks B are now beveled on the outside, which seems to operate better than when on the inside.

Having thus described my device and its advantages, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In a seed-drill, the combination with a grain-spout, of disks, revolving in intersecting planes, mounted thereon, and a scraper adjustably mounted upon the grain-spout and between the disks to move outwardly and inwardly in respect thereto below the line joining the center of the disks and their point of geatest separation, as and for the purposes set forth.

2. In a seed-drill, the combination with a grain-spout, of disks, revolving in intersecting planes, mounted thereon, and a scraper adjustably mounted upon the grain-spout and between the disks to move outwardly and inwardly in respect thereto below the line joining the center of the disks and their point of greatest separation, and diverging outwardly from said line, substantially as described.

3. In a seed-drill, the combination with a grain-spout, having a bracket-frame extending rearwardly therefrom, of disks, revolving in intersecting planes, mounted thereon and a scraper adjustably mounted upon the bracket-frame and between the disks, below the line joining the center of the disks and their point of greatest separation, substantially as described.

4. In a seed-drill, the combination, with a grain-spout, of disks revolving in intersecting planes, mounted thereon, and a curved scraper mounted between the disks, substantially as described.

5. In a seed-drill, the combination, with a grain-spout, of disks revolving in intersecting planes, mounted thereon, and a curved scraper adjustably mounted upon the grain-spout between the disks, and movable inwardly and outwardly in respect to the disks, substantially as described.

6. In a seed-drill, the combination, with a grain-spout, of disks, revolving in intersecting planes, mounted thereon and a curved scraper mounted upon the grain-spout between the disks and below the line joining their center and point of greatest separation, substantially as described.

7. In a seed-drill, the combination, with a grain-spout having a rearwardly-extending bracket-frame, with a curved face, of disks, revolving in intersecting planes, mounted thereon, and a curved scraper adjustably mounted on the curved face of the bracket-frame between the disks, substantially as described.

8. In a seed-drill, the combination, with disks, of a grain-spout carried thereon, and having a perforated projection upon its rear and having lugs upon each of its sides in front of the said projection, and arms carrying a covering device, secured to the said perforated projection and having their forward ends contained between the lugs, substantially as described.

9. In a seed-drill, the combination with a grain-spout with oppositely-disposed hollow axles, forming an oil-chamber, the ends of the said axles having horizontal oil-slots cut therein from side to side to permit the egress of the oil, and disks mounted on the said axles, substantially as described.

Dated at Hamilton, Ontario, this 22d day of July, 1898.

WILLIAM STEPHENSON.

In presence of—

R. POTTICARY,

WM. BRUCE.