

(No Model.)

3 Sheets—Sheet 1.

A. KERN.

ADJUSTABLE SOWING WHEEL FOR DRILLING MACHINES.

No. 576,856.

Patented Feb. 9, 1897.

FIG-2.

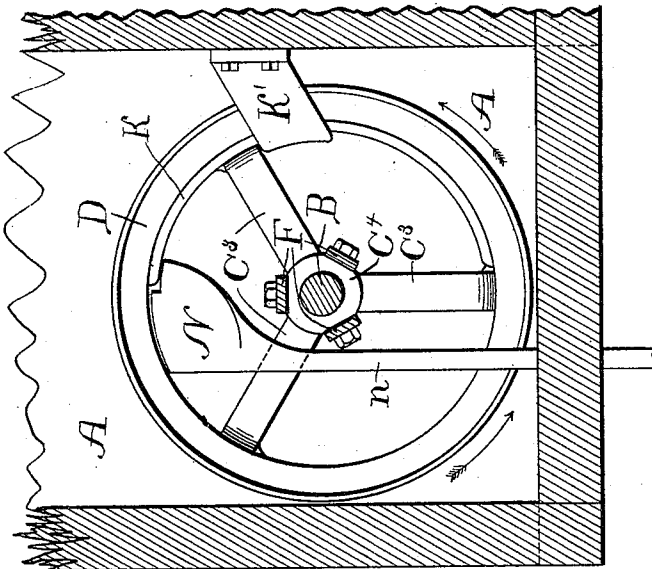
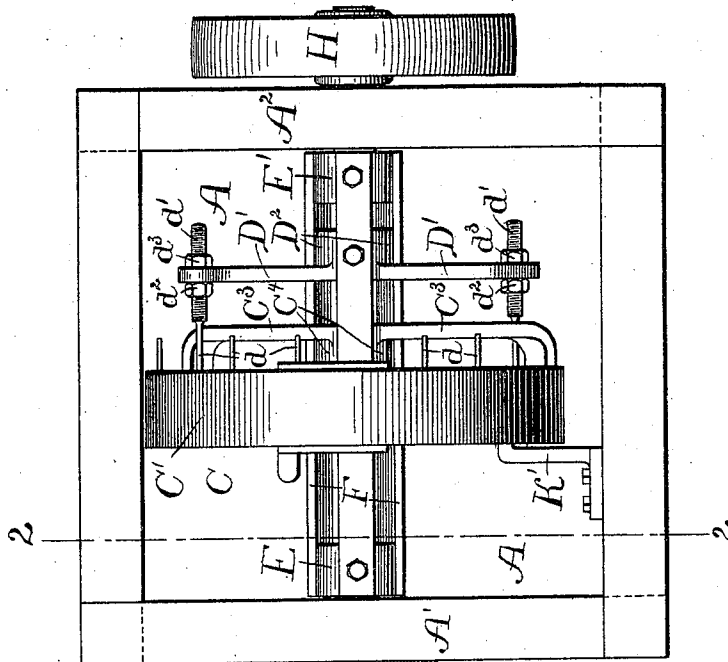
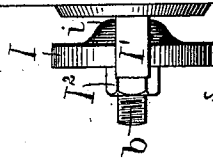


FIG-1.



Witnesses

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(No Model.)

3 Sheets—Sheet 2.

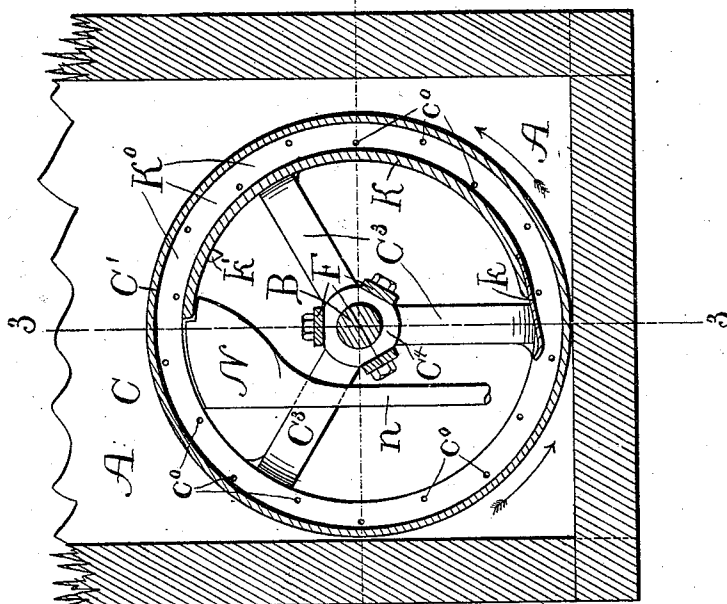
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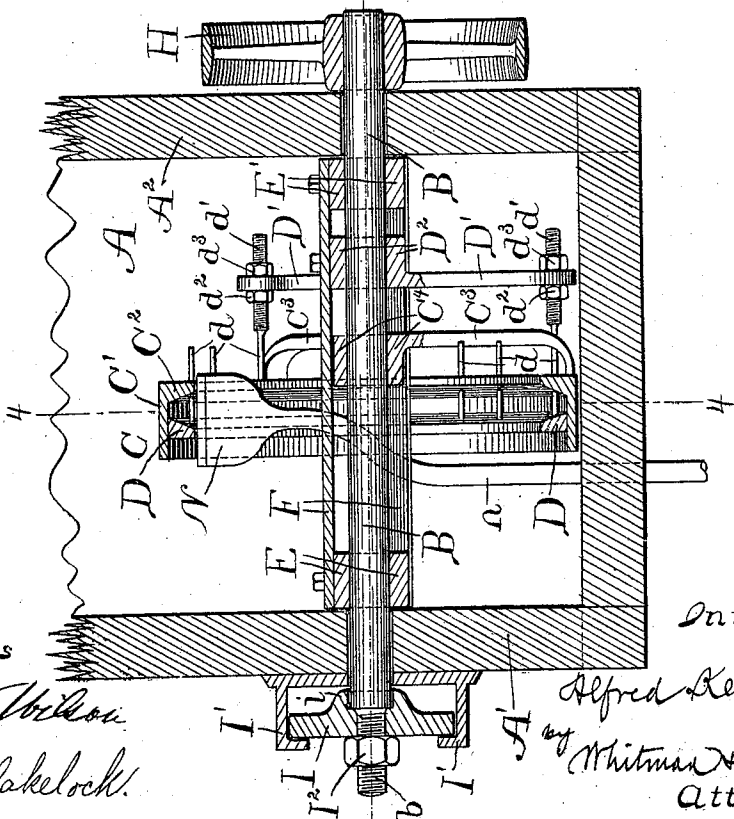
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FIG. 6. FIG. 7. FIG. 8.

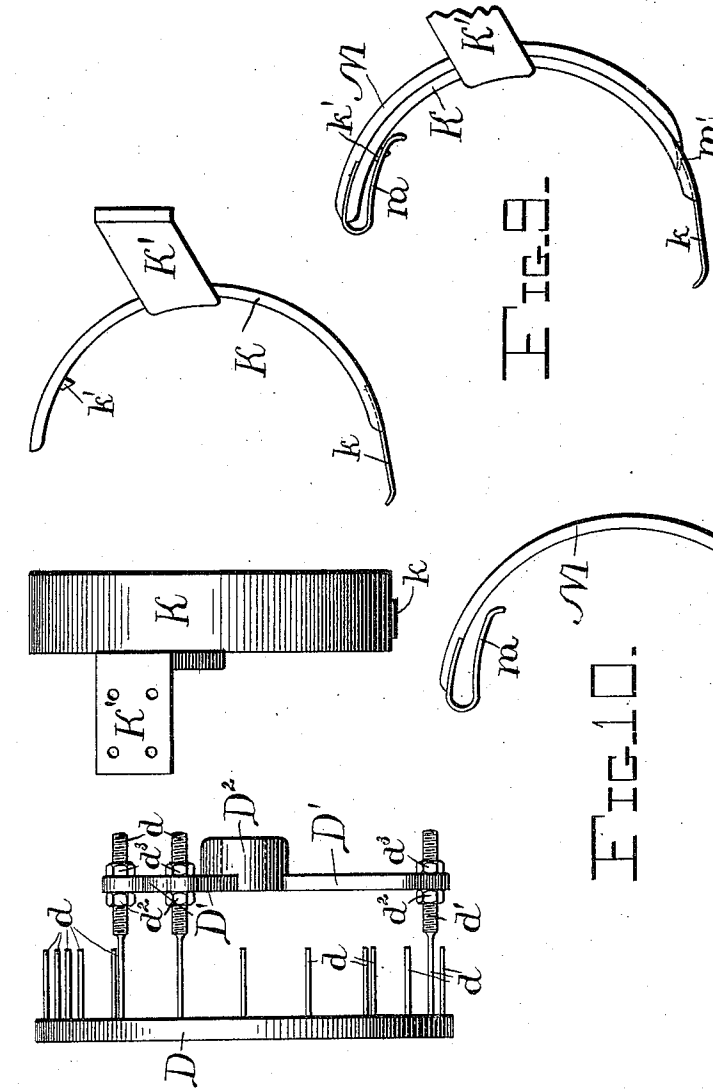


FIG. 9.

FIG. 10.

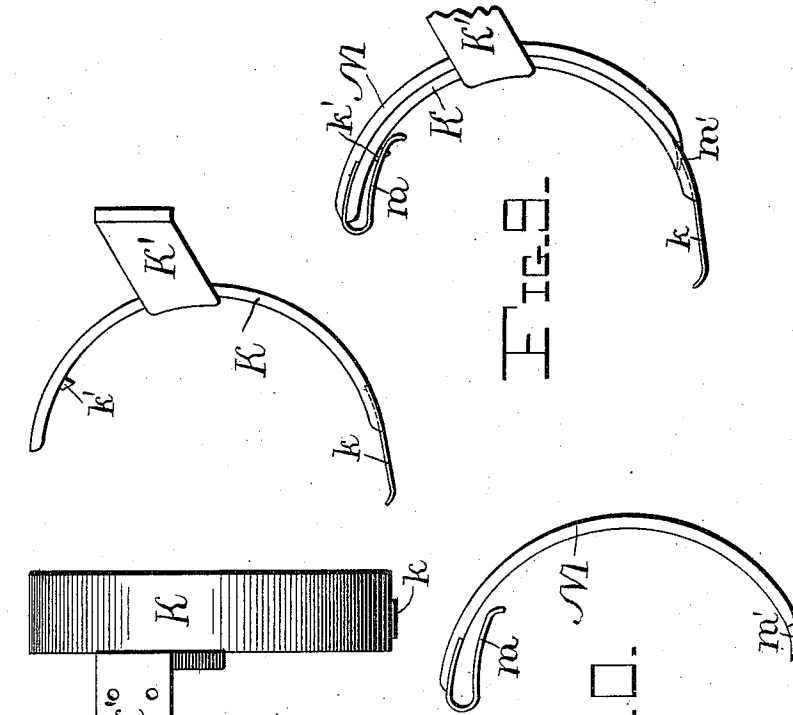
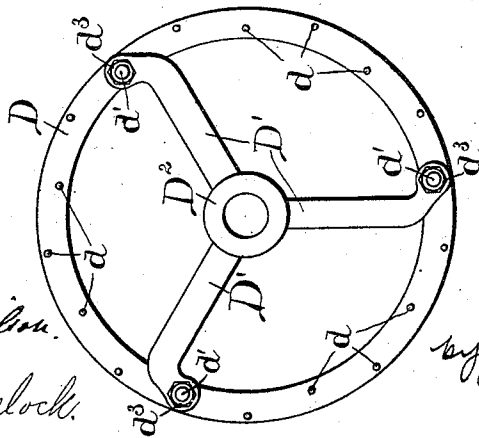


FIG. 5.



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UNITED STATES PATENT OFFICE.

ALFRED KERN, OF MAGDEBURG, GERMANY.

ADJUSTABLE SOWING-WHEEL FOR DRILLING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 576,856, dated February 9, 1897.

Application filed September 28, 1896. Serial No. 607,211. (No model.)

To all whom it may concern:

Be it known that I, ALFRED KERN, a subject of the King of Prussia, Emperor of Germany, residing at Magdeburg, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Adjustable Sowing-Wheels for Drilling-Machines, of which the following is a specification.

My invention relates to improvements in seeding-wheels for grain-drills; and it consists in the novel features and combination of parts hereinafter described and claimed.

Reference is had to the accompanying drawings, wherein the same parts are indicated by the same letters throughout the several views.

Figure 1 is a plan view of the seedbox and the seed-discharging device therein. Fig. 2 is a transverse vertical section taken on the line 2 2 of Fig. 1, parts being broken away. Fig. 3 is a longitudinal vertical section taken on the line 3 3 of Fig. 4, the discharge-spout and the operating-shaft being shown in elevation. Fig. 4 is a transverse vertical section taken on the line 4 4 of Fig. 3 and looking to the right. Fig. 5 is a detail view in elevation of the ring or flange shown in Fig. 6, and Fig. 6 is a view as seen from the left in Fig. 5. Fig. 7 is a detail side view of the feed-regulating plate and its bracket shown in Figs. 8 and 9, and Fig. 8 is a view looking to the right in Fig. 7. Fig. 9 is a side elevation of the curved feed-regulating plate shown in Fig. 10 connected thereto, and Fig. 10 is a side elevation of this attachment.

A represents the seedbox, having sides A^1 and A^2 , in which the shaft B is journaled.

C is the seed-discharging wheel, having rim C^1 and interior flange C^2 at one side of said rim, as seen most clearly in Fig. 3. Three or more curved radial arms C^3 connect the rim C^1 of the wheel C with the hub C^4 . This hub is fixed upon the shaft B by any preferred means. The flange C^2 of the wheel C is provided with a number of small perforations c^0 for the passage of guide rods or pins, as hereinafter described.

D represents a loose rim or flange similar to the flange C^2 , which fits inside of the rim C^1 and has connected thereto a number of small rods or pins d , which project through the perforations c^0 in the flange C^2 and serve as guides

when the flange C^2 is moved away from or toward the flange D. Three or more of these rods d are provided with elongated screw-threaded ends d^1 , which pass through the radial arms D^1 and are held by a double set of nuts d^2 and d^3 , which permit of the adjustment of the ring or flange D. The radial arms D^1 are connected to the hub D^2 , which is loosely mounted upon the shaft B.

E and E^1 are a pair of collars or sleeves of the same diameter as the hubs C^4 and D^2 and are loosely mounted inside of the walls A^1 and A^2 of the seedbox A.

Three strips F are bolted at their ends upon the collars E and E^1 and rest upon the hubs C^4 and D^2 between the arms on the respective hubs, and are bolted to the hub D^2 , which supports the ring or flange D, but are not bolted to the hub C^4 of the seed-wheel C.

A pulley or gear-wheel H is keyed upon one end of the shaft B outside the feed-box and is driven by any suitable gear for rotating the said shaft. The opposite end of the shaft B projects outward from the side of the seedbox and is provided with a reduced screw-threaded end b . The adjusting-nut I engages the screw-threaded end b and is provided with a shoulder i , which abuts against the outer side of the box A. A pair of right-angle guides I' hold this nut I against outward movement. By means of this nut I the shaft B may be adjusted longitudinally, carrying with it the wheel C, the flange C^2 of which is thereby moved nearer to or farther from the ring or flange D, the latter being immovable longitudinally. A lock-nut I^2 is provided for locking the adjusting-nut I in the desired position.

K represents a curved plate which fits over the inner edges of the flanges C^2 and D, thus forming an inclosed chamber, as shown at K^0 in Fig. 4, at one side of the wheel C, and is held rigidly in position by means of the bracket K^1 , attached thereto and bolted or screwed to the inner wall of the seedbox. This plate K has a short small spring k at its lower end, which serves as a guide for the seed.

M represents another curved plate, which carries a hooked spring m at its upper end adapted to engage over a lug or catch k^1 on the plate K, and with a tapering lower end m^1 , adapted to spring under the lower end of

the plate K for attaching the said plate M to the back of the plate K. This plate M is to be used where it is desired to reduce still further the size of the chamber K⁰, through which the seed passes.

N represents a receiving hopper or funnel into which the seed is discharged over the upper end of the plate K from the chamber K⁰, and this hopper or funnel has an outlet-pipe n, through which the seed is discharged to the earth.

The operation of my device is as follows: The seed to be planted is put into the box A and the shaft B is rotated by means of the pulley H, driven from any suitable source of power. The rotation of the shaft B causes the rotation of the wheel C and the ring or flange D. These parts rotate in the direction indicated by the arrows in Figs. 2 and 4. The seed falls into the space between the flange C² on the wheel C and the separate ring or flange D and is carried upward through the chamber K⁰ (seen in Fig. 4) and is discharged over the upper end of the curved stationary plate K into the funnel or hopper N, where it runs out through the discharge-tube n to the earth. The width of the space between the flanges C² and D is regulated to suit the quantity and size of the seed to be planted by means of the nuts d² and d³ on the screws d' and the adjusting-nut I, as hereinbefore described.

Should it be desired to make the measuring-space K⁰, through which the seed passes to be discharged, smaller than it is possible to make it within the adjustment of the flanges C² and D, a separate curved strip M (shown in Fig. 10) may be sprung over the back of the strip K, as shown in Fig. 9.

It will thus be seen that my seeding device may be adjusted to sow seeds of widely-varying size and in correspondingly-varying quantities.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a seeding device, the combination with a seedbox of a shaft journaled therein; means for rotating said shaft; a wheel having wide flat rim with an interior flange thereon rigidly mounted upon said shaft within said box, and having perforations through the said flange; an annular ring or flange mounted loosely upon said shaft, and fitting within the rim of said wheel and adapted to rotate therewith; guide-rods rigidly mounted on said annular ring and projecting through said perforations in said interior flange on said wheel; radial arms carried by a hub loosely mounted upon said shaft connected to the ends of three or more of said guide-rods and supporting said annular ring; a curved plate secured rigidly to the side of the box and fitting over the inner edges of said flanges, and forming a closed passage for the seed at one side of the wheel; a hopper adapted to re-

ceive the seed from one end of said passages; and a discharging tube or outlet from the bottom of said hopper, substantially as described.

2. In a seeding device, the combination with a seedbox of a shaft journaled therein; means for rotating said shaft; means for adjusting said shaft longitudinally, and for holding the same at the desired adjustment during rotation; a wheel having wide flat rim with an interior flange thereon rigidly mounted upon said shaft within said box; an annular ring or flange mounted loosely upon said shaft, and fitting within the rim of said wheel and adapted to rotate therewith; guides for said annular ring or flange; a curved plate secured rigidly to the side of the box and fitting over the inner edges of said flanges, and forming a closed passage for the seed at one side of the wheel; a hopper adapted to receive the seed from one end of said passages; and a discharging tube or outlet from the bottom of said hopper, substantially as described.

3. In a seeding device, the combination with a seedbox, of a shaft journaled therein; means for rotating said shaft; a wheel having wide flat rim with an interior flange thereon rigidly mounted upon said shaft within said box; an annular ring or flange mounted loosely upon said shaft, and fitting within the rim of said wheel and adapted to rotate therewith; guides for said annular ring or flange; means for adjusting said annular ring or flange toward or away from the interior flange on said rim, a curved plate secured rigidly to the side of the box and fitting over the inner edges of said flanges, and forming a closed passage for the seed at one side of the wheel; a hopper adapted to receive the seed from one end of said passages; and a discharging tube or outlet from the bottom of said hopper, substantially as described.

4. In a seeding device the combination with the seedbox A, the shaft B journaled therein, the driving-wheel H mounted upon one end of said shaft, and the adjusting-nut I engaging the opposite end, and brackets confining said nut against movement in the direction of the axis of said shaft; of the wheel C composed of rim C', interior flange C², curved radial arms C³ and hub C⁴, the latter being fixed upon the shaft B; the annular ring or flange D' having guide-rods thereon projecting through guide-openings in said flange C², three or more of said guide-rods having screw-threaded ends d'; the radial arms D' having openings in the ends through which said screw-threaded ends d' extend; nuts securing said screw-threaded ends d' adjustably in said radial arms; sleeves E and E' mounted loosely upon said shaft; strips F resting across said sleeves E and E' and the hubs C⁴ and D³, between the radial arms on said hubs, and secured to both of said sleeves and to said hub D³; the curved plate K held by a bracket secured to the side of the

seedbox, and fitting over the inner edges of said flanges C² and D; the hopper or funnel N for receiving the seed, and the discharge-tube *n* leading therefrom, substantially as described.

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5. In a seeding device, the combination with the seedbox A, the shaft B journaled therein; the driving-wheel H mounted upon one end of said shaft, and the adjusting-nut I engaging the opposite end; and brackets confining said nut against movement in the direction of the axis of said shaft; of the wheel C composed of rim C', interior flange C², curved radial arms C³ and the hub C⁴, the latter being fixed upon the shaft B; the annular ring or flange D having guide-rods thereon projecting through guide-openings in said flange C², three or more of said guide-rods having screw-threaded ends *d'*; the radial arms D' having openings in the ends through which said screw-threaded ends *d'* extend; nuts securing said screw-threaded

ends *d'* adjustably in said radial arms; sleeves E and E' mounted loosely upon said shaft; strips F resting across said sleeves E and E' and the hubs C⁴ and D², between the radial arms on said hubs, and secured to both of said sleeves and to said hub D²; the curved plate K held by a bracket secured to the side of the seedbox, and fitting over the inner edges of said flanges C² and D; the curved plate M adapted to be clamped upon the back of said curved plate K; the hopper or funnel N for receiving the seed, and the discharge-tube *n* leading therefrom, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALFRED KERN.

Witnesses:

JULIUS MUTH,
PAUL MÜLLER.