

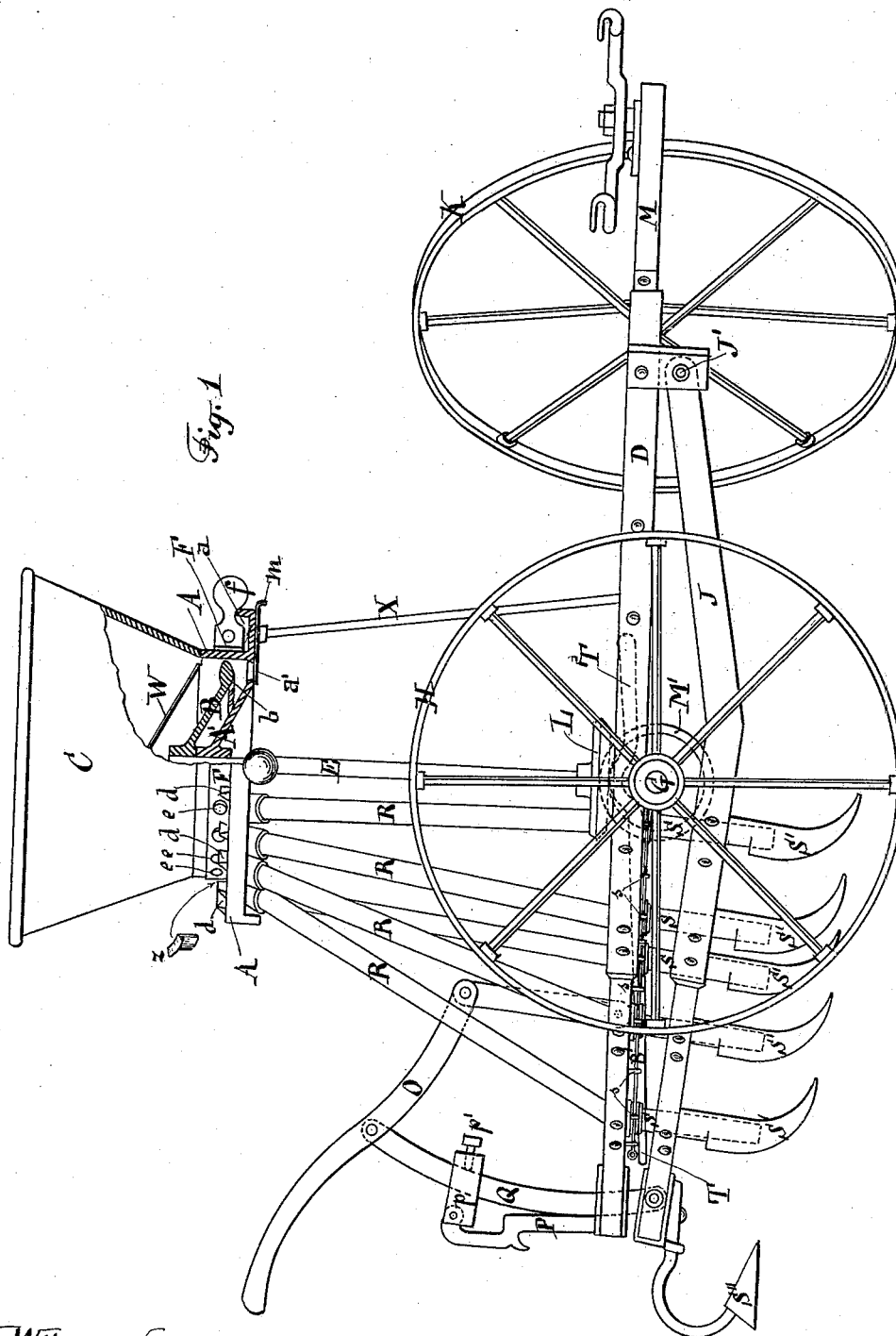
(No Model.)

4 Sheets—Sheet 1.

C. HERREN.  
DRILL PLOW.

No. 383,224.

Patented May 22, 1888.



Witnesses:

A. DeBarry

*[Signature]*

Inventor:

Christian Herren

(No Model.)

4 Sheets—Sheet 2.

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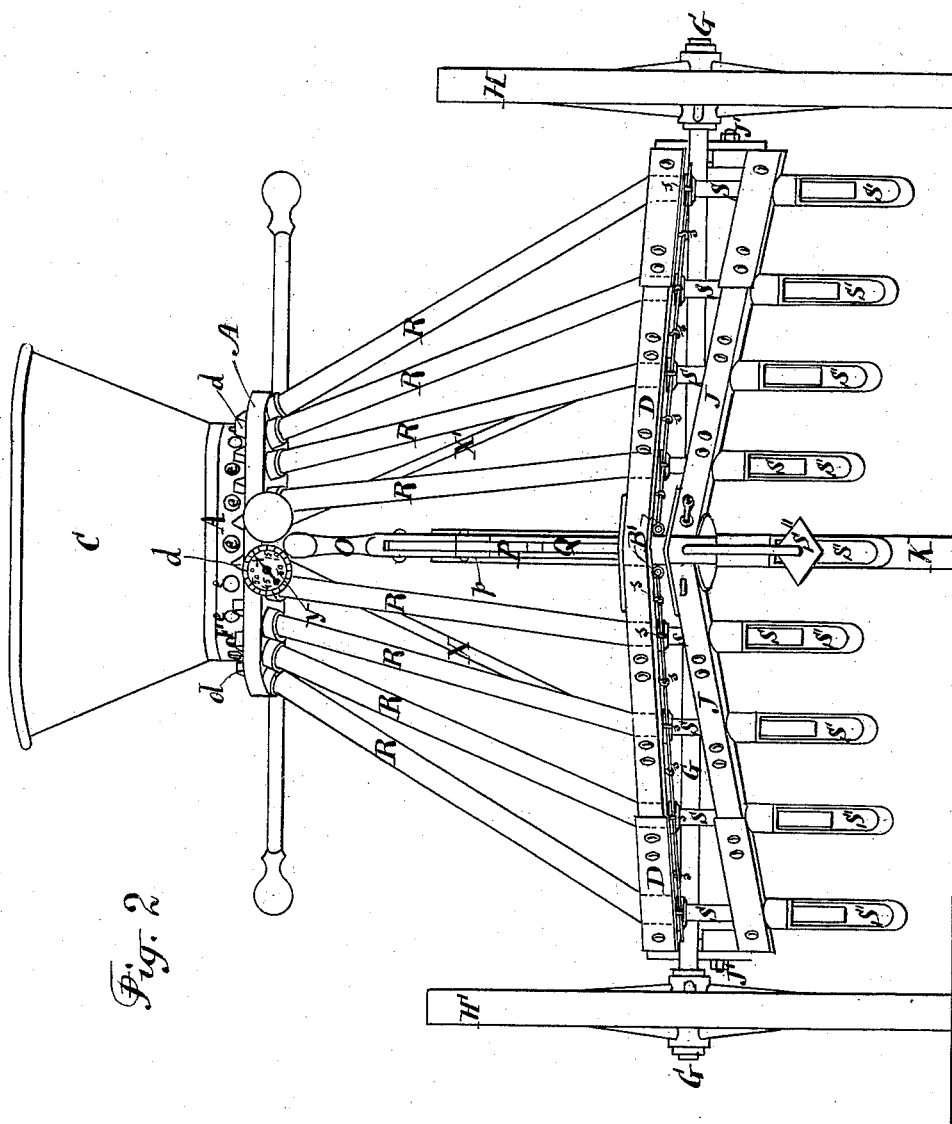


Fig. 2

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A. Debarry.

Inventor:  
Christian Herren.

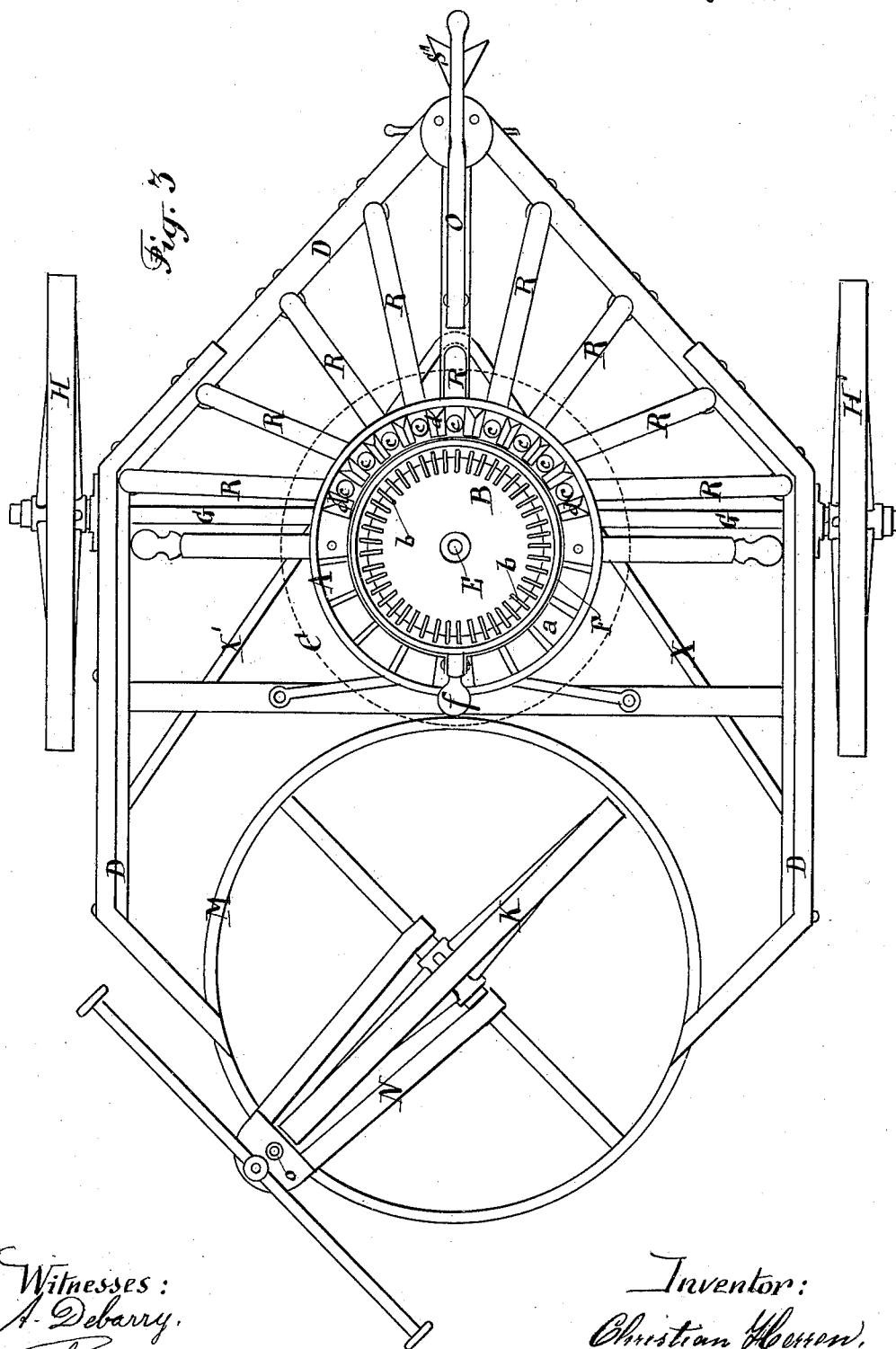
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C. HERREN.  
DRILL PLOW.

No. 383,224.

Patented May 22, 1888.



Witnesses:  
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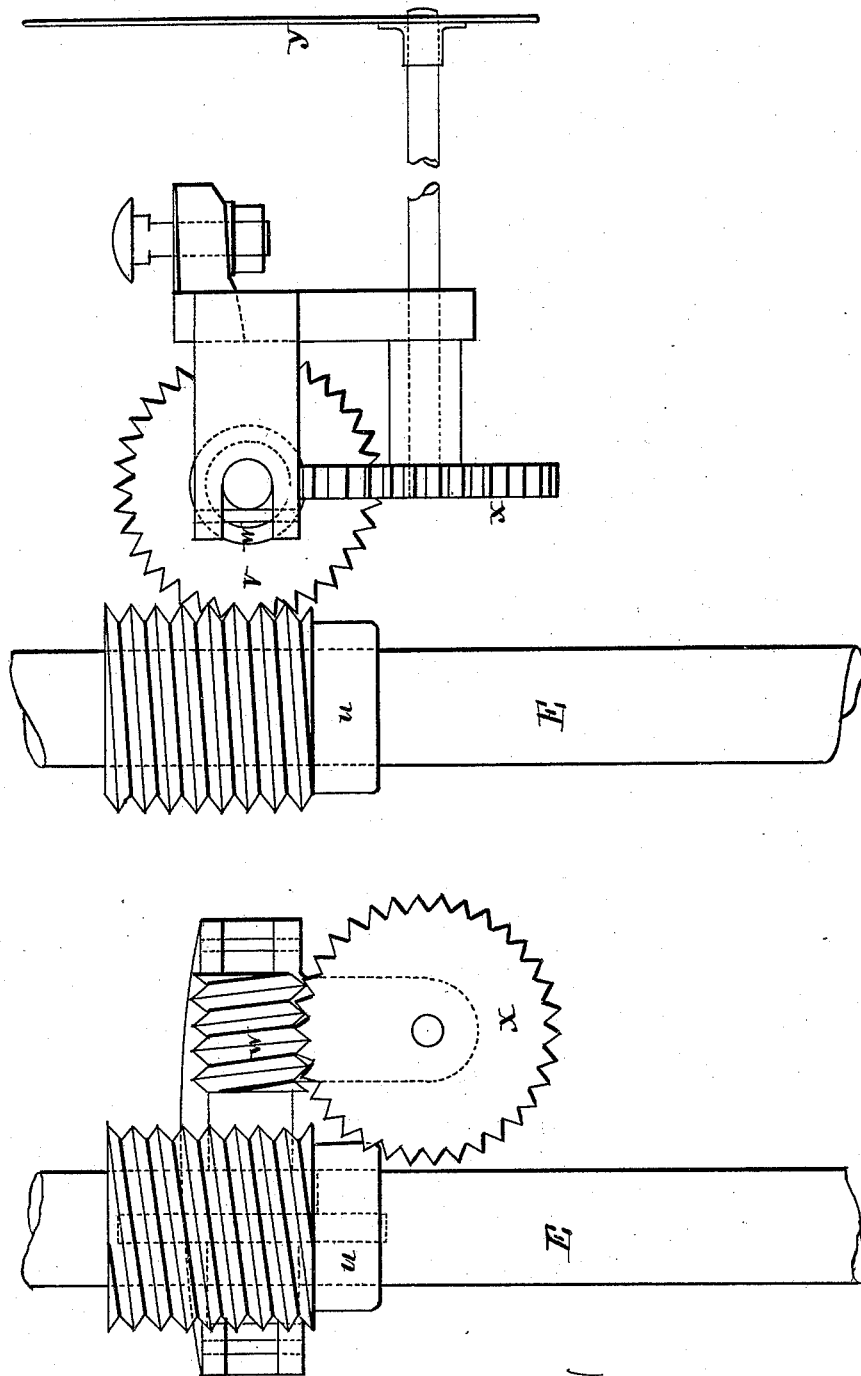
(No Model.)

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C. HERREN.  
DRILL PLOW.

No. 383,224.

Patented May 22, 1888.



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Inventor:  
Christian Horner.

# UNITED STATES PATENT OFFICE.

CHRISTIAN HERREN, OF LAUPEN, SWITZERLAND, ASSIGNOR TO HIMSELF  
AND ARNOLD DEBARRY, OF SAN FRANCISCO, CALIFORNIA.

## DRILL-PLOW.

SPECIFICATION forming part of Letters Patent No. 383,224, dated May 22, 1888.

Application filed December 5, 1887. Serial No 256,968. (No model.)

*To all whom it may concern:*

Be it known that I, CHRISTIAN HERREN, of Laupen, in Switzerland, have invented a new and useful Improvement in Drill - Plows, of which the following is a specification.

My improved drill-plow is a universal and centrifugal working machine, which is represented in the accompanying drawings and described in the following specification.

In the drawings, Figure 1 is a side view of the improved drill-plow, with partial section showing the disposition of the head-piece A, groove *a*, bottom A', and stirring-wheel B. Fig. 2 is a front view, and Fig. 3 a top view, of the same. Fig. 4 shows on a larger scale the details of the mechanism of the indicator.

In all the figures similar letters refer to similar pieces.

The machine is supported by two wheels, H and H', bearing an axle G, which bears the frame D. The latter is provided with a circular part, M, resting upon the axle of the guide-wheel K, provided with a forked bearing, N, to which the horses are attached. The frame M is made of U-iron, and the bearing N is provided with a roller, O, working into the groove of M, so as to have the guide-wheel K easily turned in any direction.

The wheel H is affixed to the axle G, so as to turn the same when the machine is moved forward, while the wheel H' is free to turn upon the axle G.

The distributor of the seed is the main part of the invention, and is constructed as follows: Over the frame D there is affixed a cylindrical head-piece, A, having a circular groove, *a*, and a conical bottom, A', the center of which is traversed by a vertical axis, E. Said head-piece A is affixed to the frame D by means of two bearings, X X', and the tubes R. In the drawings there are nine such tubes; but their number might be increased or diminished in certain cases. These tubes are disposed so as to correspond to the holes *c*, bored into one-half of the head-piece A at the groove *a*. Between the said holes the groove *a* is provided with prismatic and radial division-plates *d*, and the cylindrical head-piece A is provided with holes *e*, corresponding to the holes *c* of groove *a*. A metallic sliding ring, F, having holes corresponding to the holes *e*, is placed

closely around the head-piece A, so as to have the openings *e* partially or totally closed by turning the ring F by means of its handle *f*. Thus one may regulate at will the quantity of seed passing the holes *e* by moving the sliding ring F. Over the head-piece A there is secured a hopper, C, into which the seeds are introduced. To the axle G there is affixed a bevel gear-wheel, M', which, by means of a lever, T, may be put in or out of gear with a horizontal gear-wheel, L, secured to the vertical axis E. To the top of the latter there is affixed a stirring-wheel, B, provided with paddles *b*. Over the stirring-wheel B there is a conical cover, W, intended to regulate the pressure of the seeds contained in the hopper C, so as to have a regular flow of the seeds between its edge and the hopper. The lower extremities of the tubes R are secured to the frame D and provided with tubes S, of tin-plate or other material, suspended from the frame D by means of loops *s* and rods B'. A frame, J, is hinged to the under side of the frame D, at the front, by means of bolts J', and suspended on the back of the machine to the frame D by a rod, Q, and lever O.

To the frame D there is affixed a bearing, P, having a loop, *p*, through which slides the rod Q. A screw, *p'*, pressing against Q, allows the frame J to be fixed at will higher or lower. The frame J is supposed to be lifted and fixed in its highest position, so as to allow the machine to be transported without working.

To the frame J there are affixed as many hollow shares S' as there are tubes R. These shares S' are placed so as to correspond with the tubes S, which enter them, so as to strew the seeds into the furrows made by the shares.

A supplementary share, S'', is affixed to the frame J, for the purpose of closing the furrows of the two middle shares.

When the machine is to be put into action—that is to say, when it is upon the ground which is to be drilled—the frame J is lowered to the convenient depth and the wheels M' and L are put into gear by means of the coupling-lever T. Then the ring F is moved so as to disclose more or less the holes *e*.

In this machine the revolution of the stirring-wheel B causes the seeds to pass out through the holes *e* and fall through the holes

*c* and tubes *R*, thus insuring a uniform delivery of such seed, according to the speed of the machine, and the edge of this stirring-wheel *B* does not injure the seeds or grain, because such grain lies loosely below the opening between the edge of the cover *W* and the inside of the hopper *C*.

The head-piece *A* is provided with an opening, *a'*, closed by means of a slider, *m*, which may be withdrawn when the seeds contained in *A* are to be emptied. The axis *E* is furthermore provided with a worm, *u*, gearing into a worm-wheel, *v*, the rotation of which is further transmitted by means of a horizontal worm, *w*, to a second worm-wheel, *x*, the axis of which bears the hand of an indicator, *y*. The dial of the latter is provided with a division giving directly the area which has been drilled.

The width to which the holes *e* are to be opened depends on the quantity of seed required, according to the quality of the earth in which one is drilling. Now, knowing the quantity of seeds placed into the hopper *C* and being able to measure by means of the indicator *y* the area drilled with said quantity when the holes *e* are entirely open, one may easily find out how much those holes *e* are to be closed, according to the quality of earth and of the seeds.

For drilling of all kinds of cereals the machine will be employed with all its tubes *R*; but it may happen that in view of drilling beet-roots or the like it is desirable to have only some of the tubes *R* working. For that purpose it is only necessary to introduce into a slit between the partitions *d* and the ring *F*, Fig. 3, in front of those holes *e* which are to be closed, a slide, *z*.

When the drill-plow is to be used for spreading clover-seed or chemical manure, the frame *J*, with shares *S'*, can be withdrawn. To effect this, remove first the two rods *B'*. It causes the tubes *S* to fall into the hollow shares *S'*. Then remove the bolts *J'* and *Q'*, and the frame *J* is released.

Having thus described my invention, what I claim is—

1. The head-piece *A*, with conical bottom *A'*, circular groove *a*, in combination with a stirring-wheel, *B*, moved by means of a connection to the wheels *H*, and with a hopper, *C*, and cover *W*, substantially as shown and described, and for the purpose specified.

2. The combination of head-piece *A* with the tubes *R*, frame *D*, removable prolongation-tubes *S*, connected to the frame *D*, and movable frame *J*, and the hollow shares *S'*, connected to the frame *J* and corresponding to the tubes *S*, substantially as shown and described, and for the purpose specified.

3. The combination of frame *J* with bolts *J'* and *Q'*, rod *Q*, lever *O*, bearing *P*, loop *p*, and screw *p'*, substantially as shown and described, and for the purpose specified.

4. The combination, with the seed-tubes *R* and shares *S'*, of the hopper *C*, the revolving stirring-wheel *B* within the hopper, the bottom *A'* below the stirring-wheel, and the cover *W* above the same, there being an opening between the cover and the inside of the hopper, and holes through the base of the hopper and above the seed-tubes *R*, substantially as set forth.

CHRISTIAN HERREN. [L. s.]

Witnesses:

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