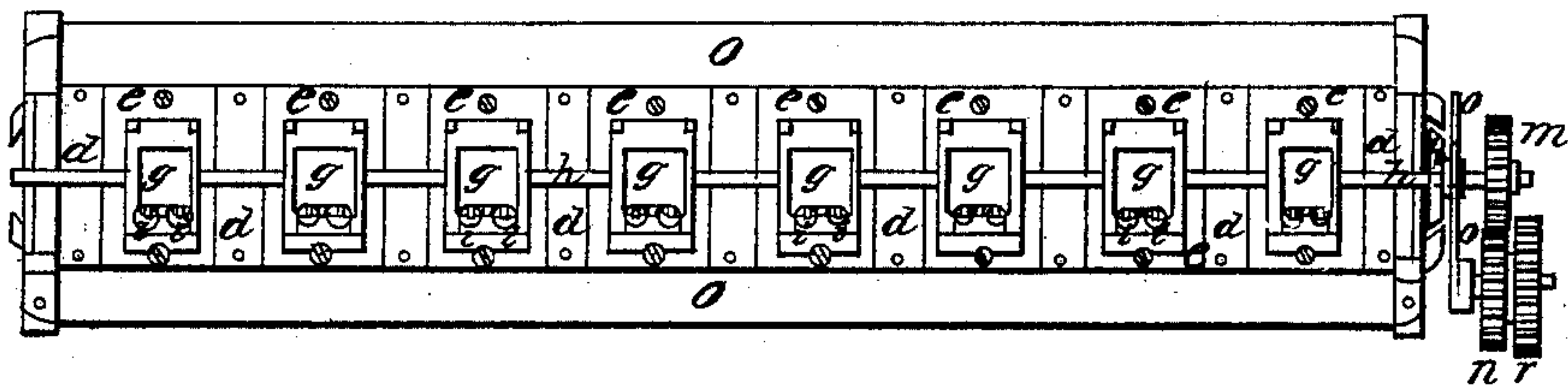


*J. P. Zeller,*  
*Grain Drill.*

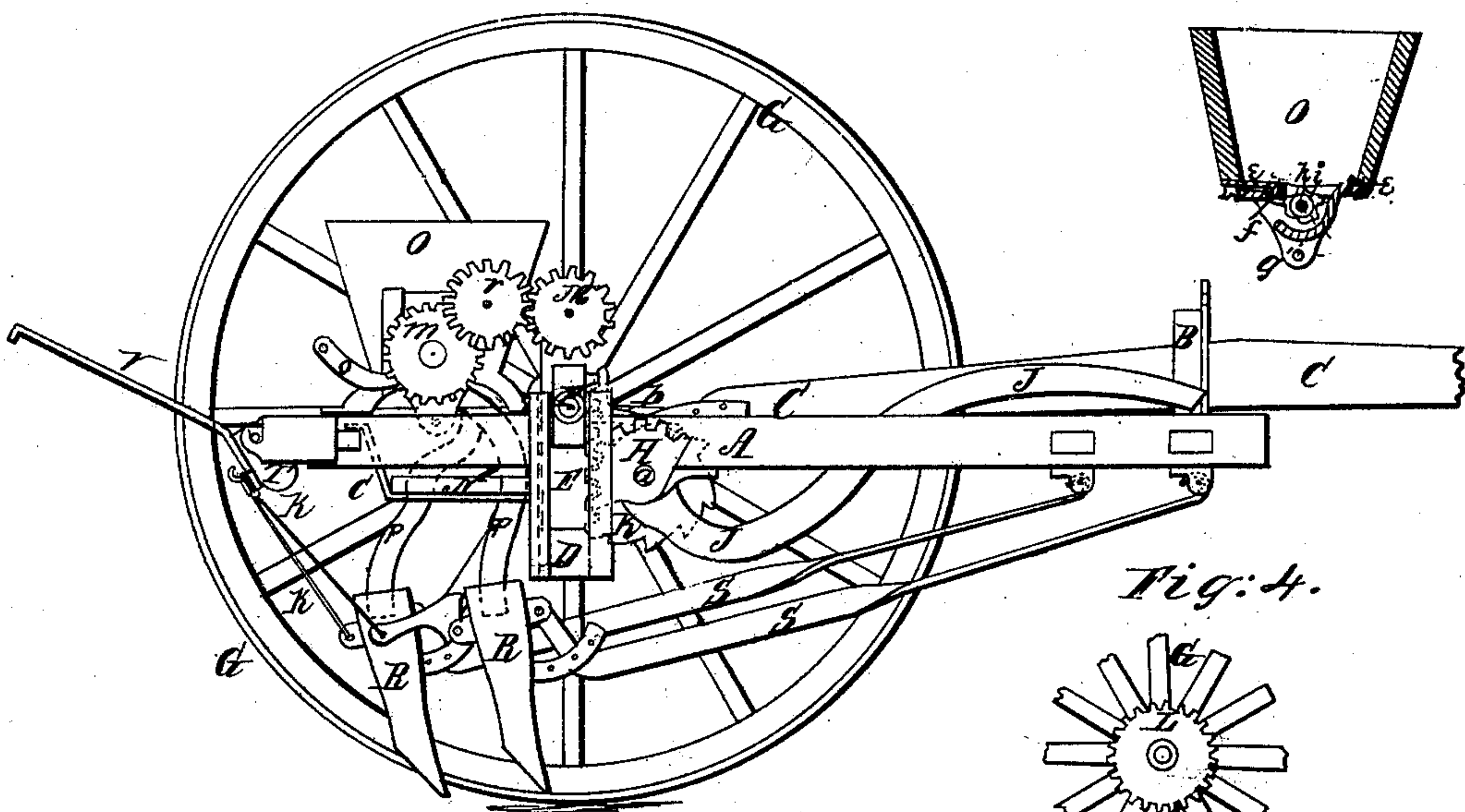
*No. 94,686.*

*Patented, Sept. 7. 1869.*

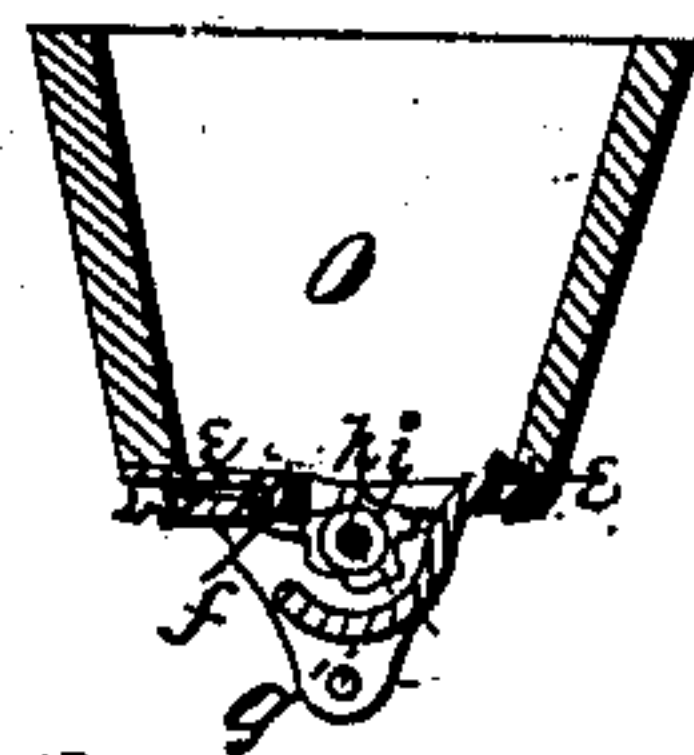
*Fig: 1.*



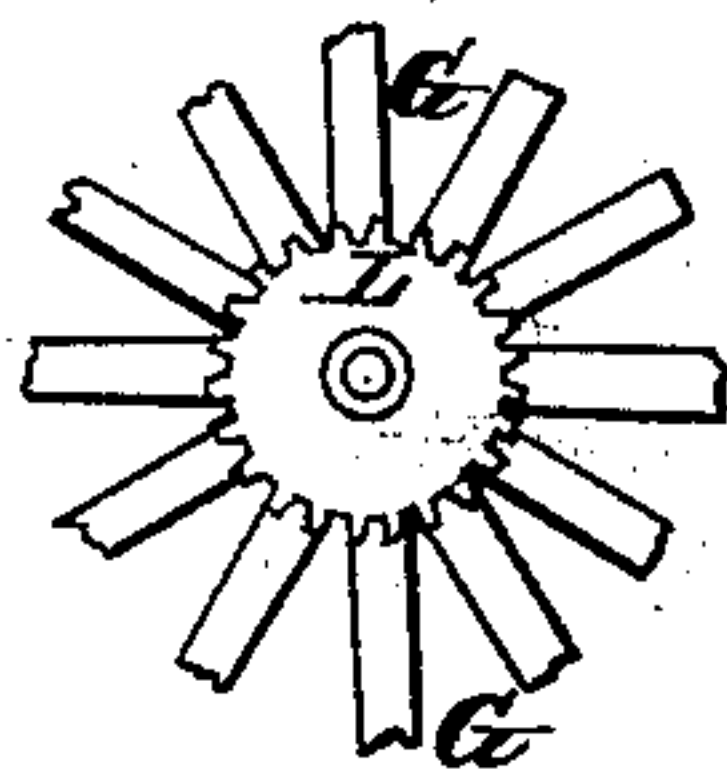
*Fig: 2.*



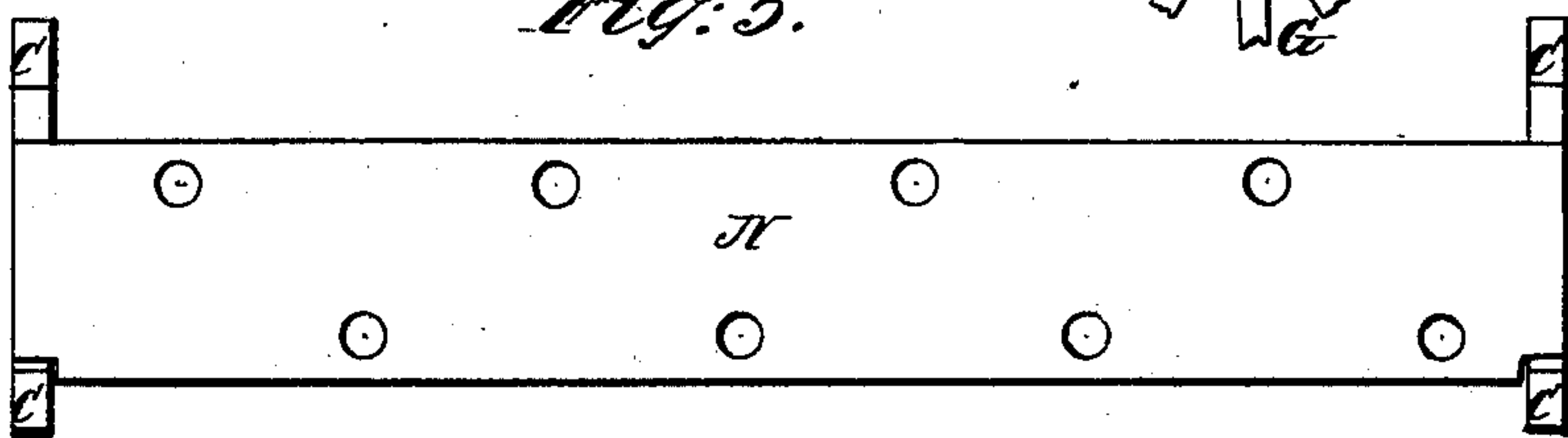
*Fig: 3.*



*Fig: 4.*



*Fig: 5.*



*Witnesses*  
*Harry King*  
*Lupold Kurth*

*Inventor*  
*J. P. Zeller*  
*per Alexander Mason*  
*Att'y*



# United States Patent Office.

JOHN P. ZELLER, OF SOUTH BEND, INDIANA.

Letters Patent No. 94,686, dated September 7, 1869.

## IMPROVEMENT IN FORCED FEED-GEARING IN SEED-DRILLS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, JOHN P. ZELLER, of South Bend, in the county of St. Joseph, and in the State of Indiana, have invented certain new and useful Improvements in Grain-Drills; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the construction of the seed-box of a grain-drill, and in the arrangement of the different devices used in connection therewith, all of which will be hereinafter fully set forth.

In order to enable others skilled in the art to which my invention appertains, to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, which form a part of this specification, and in which—

Figure 1 is a bottom view of the seed-box;

Figure 2 is a side view of the whole machine, the outer wheel taken off;

Figure 3 is a transverse vertical section of the seed-box;

Figure 4 shows the inner side of the hub of the outer wheel; and

Figure 5 is a plan view of the perforated board, under the seed-box.

A represents a horizontal frame, of suitable dimensions.

At the centre of the front end of this frame is a loop or bent bar, B, through which the tongue C is inserted, the rear end of said tongue passing backward, and is pivoted in some suitable manner to a cross-bar in the frame.

On each side of the frame A is secured a box, D, open on the outer side, in which box slides, vertically, a rack-bar, E, having secured to its outer side the axle F, on which the wheel G is placed.

In suitable journal-boxes in the sides of the frame is placed a shaft, *a*, at each end of which is a cogged segment, H, that gears into the rack-bar E, through a slot in the edge of the box D.

The shaft *a* is, at a suitable point inside of the frame A, provided with a lever, J, by means of which said shaft is turned, whereby the cogged segments H H are made to raise or lower the rack-bars E E in the boxes D D; or, in other words, the frame A is raised or lowered from the ground at pleasure.

It is held at any height desired, by means of a hook, *b*, which is pivoted to a cross-bar in the frame, and catches in the toothed wheel K on the shaft *a*, thus preventing the frame from sliding downward.

When it is desired to lower the frame, it is only necessary to raise the hook *b*, when the shaft may be readily turned by the lever J.

On the inner side of the hub of one of the wheels

is placed a cog-wheel, L, which gears into another cog-wheel, M, pivoted at the upper end of the rack-bar E.

In the rear portion of the frame A is suspended a perforated board, N, through which a series of flexible tubes pass, to convey the seed from the seed-box to the hoes. This perforated board is suspended by means of metal bars, *c c*, which are bent at their upper ends, and rest on cross-bars in the frame.

On the rear end of the frame A, above the perforated board N, rests the seed-box O, the bottom of which is made in sections, as seen in fig. 1.

Each alternate section, *d*, is solid, but the other sections, *e*, have a hole through their centre, which hole is surrounded by a flange, *f*, projecting downward. On this flange is placed a rounded shoe, *g*, which is open at the front, and secured to the section *e* by screws, bolts, or other suitable means.

The sides of the flanges *f f*, as well as the sides of the shoes *g g*, are cut out, so as to admit and form bearings for a shaft, *h*, which extends the whole length of the seed-box, under its bottom.

In each shoe, *g*, on the shaft *h*, are placed two toothed wheels, *i i*, which, when the shaft is revolving, carry the seed downward from the box into the flexible tubes P P, which convey it to the hoes R R, from where it is deposited in the ground.

The shoes R R are adjusted to levers S S, which extend forward, and have each, at their front ends, two hooks, which are attached to loops, or their equivalents, on the under side of two cross-bars in the front end of the frame A.

To the rear side of the shoes R R are attached ropes or chains, *k k*, by means of which the shoes are connected with a bar, T, pivoted in the rear end of the frame A; and this bar being provided with a handle or lever, V, it can readily be turned, so as to raise the shoes R R out of or up from the ground.

The agitators *i i* are operated in the following manner:

On the end of the shaft *h* is a cog-wheel, *m*, which gears with a cog-wheel, *n*, placed at the end of a lever, *o*. This lever is bent, and at its centre is placed around a collar on the plate or bar *p*, at the end of the seed-box, through which collar the shaft *h* passes, so that the lever *o* may be turned, without interfering with the motion of the shaft. To the cog-wheel *n* is attached another cog-wheel, *r*, which gears with the wheel M, at the top of the sliding plate E, when the lever *o* is properly turned. The wheel M, obtaining its motion, as already described, from one of the driving wheels, communicates its motion, through the wheels *r*, *n*, and *m*, to the shaft *h* and agitators *i i*. When it is desired to stop the motion of the agitators, it is only necessary to change the position of the lever *o*, so that the wheel *r* will be away from the wheel M.

It will be seen that the seed-box O, and hoes and



levers, are easily removed from the carriage, so that other agricultural implements, if properly constructed, could be attached to the same.

Having thus fully described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The seed-box O, constructed as described, with its bottom made in sections, each alternate section containing a shoe and seed-agitator, substantially as herein set forth.

2. The arrangement of the seed-box O, constructed as described, with the movable perforated board N, through which the flexible conducting-tubes pass, and

the hoes or drills R R, all substantially as and for the purposes herein set forth.

3. The arrangement of the seed-box O, perforated board N, hoes R R, and bar T, when all are constructed as described, and placed on an adjustable carriage, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing, I have hereunto set my hand, this 30th day of March, 1869.

JOHN P. ZELLER.

Witnesses:

N. H. NULL,

JOHN H. NULL.