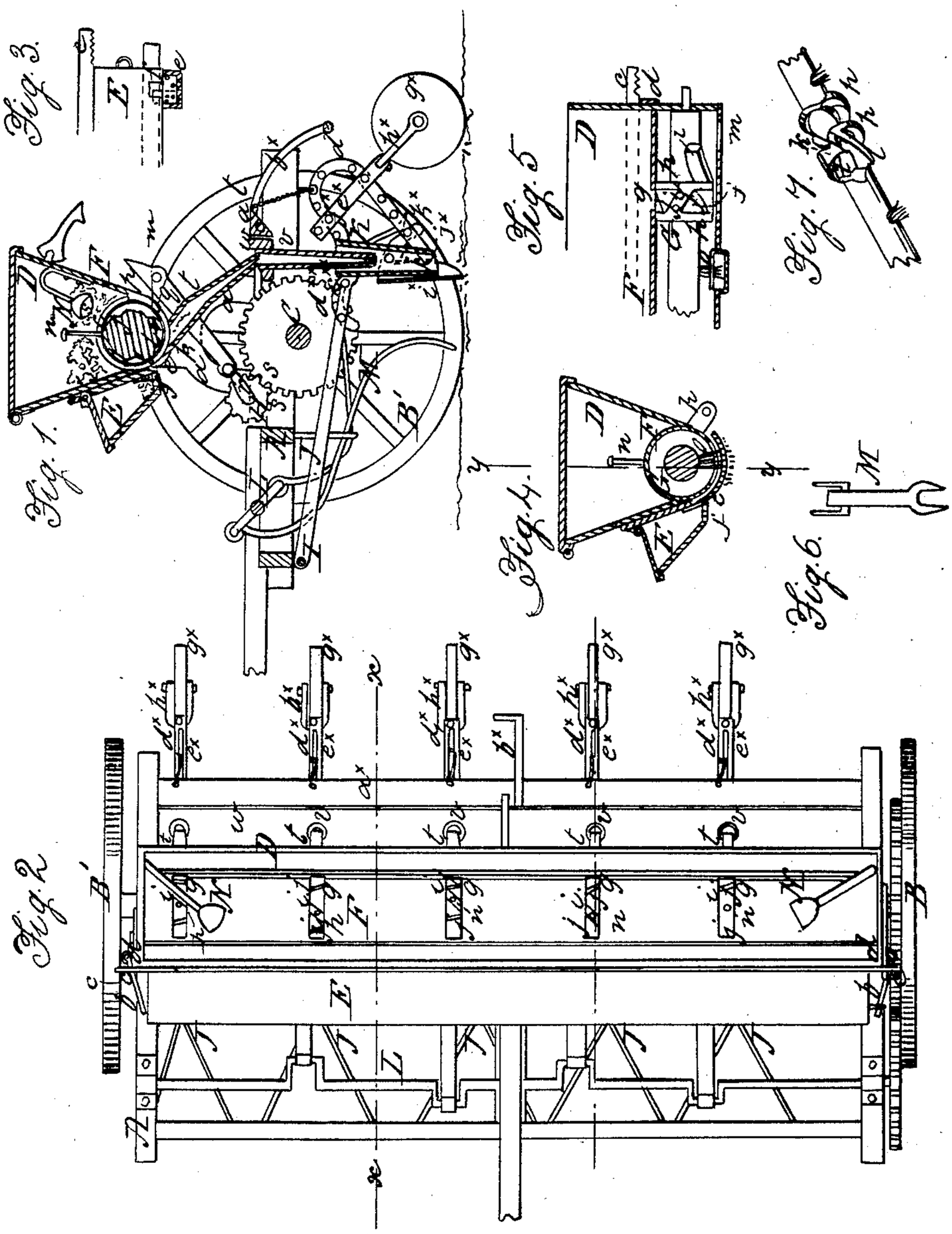
BUNSEN & ROBERTS.

Grain-Drill.

No. 21,595. Patented Sept. 28, 1858.



UNITED STATES PATENT OFFICE.

GEORGE C. BUNSEN AND CYRUS ROBERTS, OF BELLEVILLE, ILLINOIS.

IMPROVEMENT IN SEEDING-MACHINES.

Specification forming part of Letters Patent No. **21,595**, dated September 28, 1858.

To all whom it may concern:

Be it known that we, GEORGE C. BUNSEN and C. ROBERTS, of Belleville, in the county of St. Clair and State of Illinois, have invented a new and Improved Seeding-Machine; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a transverse vertical section of our improvement, taken in the line *x x*, Fig. 2. Fig. 2 is a plan or top view of the same. Fig. 3 is a back view of a portion of one of the seed-boxes. Fig. 4 is a transverse vertical section of both seed-boxes and the seed-distributing cylinder. Fig. 5 is a longitudinal vertical section of the larger seed-box, taken in the line *y y*, Fig. 4. Fig. 6 is a detached view of one of the clearers. Fig. 7 is a perspective view of a portion of the seed-distributing cylinder.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to an improvement in that class of seeding-machines designed for sowing seed in drills or in a broadcast manner.

To enable those skilled in the art to fully understand and construct our invention, we will proceed to describe it.

A represents a horizontal rectangular frame, which is mounted on wheels B B′, the axle C of said wheels being fitted in bearings underneath the frame, the wheel B being placed loosely on the axle and the wheel B′ attached permanently thereto, so that the axle will turn in its bearings.

D is a seed-box, the ends of which are attached to supports *a a*, which are secured to the ends of the frame A, the seed-box extending the whole length of the frame.

E is a seed-box, which is placed directly in front of D. The seed-box E is equal in length to the box D, but it is smaller in other dimensions; and the box E is secured to the box D by hooks *b*—one at each end—and retained in the desired position by notched bars *c*, attached to it, and plates *d*, attached to the ends of the box D.

To the under side of the box E perforated plates *e* are attached at equal distances apart, said plates being perforated closer at one side than at the other. The plates *e* extend underneath the box D, and holes *f* are made through the box E opposite each plate *e*. At the bottom of the box D there is a cylindrical case, F, in which a cylinder, G, is fitted or placed. The upper part of this case forms the bottom of the seed-box A, and slots *g* are made in the bottom of said box, to allow the seed to pass through. The cylinder G extends the whole length of the case F, and it has flanges *h* formed circumferentially around it in pairs at suitable distances apart, and between the flanges *h* of each pair there is a diagonal partition, *i*. At each side of the partitions *i* there are step-like projections *j*, which communicate with a zigzag groove, *k*, formed between ledges *l* at the under side of the cylinder G. (See more particularly Fig. 7.) The spaces between the pairs of flanges *h* are directly under the holes or slots *g* in the bottom of box D. Similar holes, *m*, are made in the bottom of the case F, directly under the ends of the grooves *k*. In the partitions *i* pins *n* are driven, said pins extending upward within the hopper, as shown in Figs. 1 and 4.

In the under side of the cylinder G brushes *o* are fitted or secured, said brushes extending down through slots in the case F, and working over the perforated plates *e*.

To the cylinder G an arm, *p*, is attached. This arm projects through a slot in the case F, and has a rod, *q*, attached to its outer end, said rod being connected to a crank, *r*, on a shaft, H, which is parallel with the axle C, and is driven from it by gearing *s*. (See Fig. 1.)

The distribution of the seed is as follows: A reciprocating rotating motion is given the cylinder G by the rod *q*, arm *p*, and crank *r*, and the seed in D passes down through the holes or slots *g* into the spaces between the flanges *h*, and is passed down to the grooves *k* and is discharged through the holes *m* into inclined tubes *t*, which are attached to a rod, *u*, in the framing, said tubes communicating with the upper ends of tubes *v*, which are attached to a bar, *w*, at the back part of the frame A. The bar *w* has a strip or bar, $a^{\times}$, adjoining it at its back edge, the latter being allowed to turn in the frame on journals and having a rod, $b^{\times}$, attached to it, by which it may be retained in a certain position when desired. This will be more particularly referred to hereinafter. The cylinder G discharges the seed during both movements—that is, at both sides of the partitions *i*—for the zigzag grooves *k* will discharge the seed while the cylinder is moving in either direction. In the hopper D larger seed—such

as wheat, barley, and the like—are placed, and smaller seeds in the box E, the seed in the latter box passing through the hole *f* in the perforated plate *e*, through which it is brushed by the brushes *o*, and the discharge of the seed through the plates *e* may be regulated as desired by adjusting the box E longitudinally, which is done by placing the notched bars *c* over the plates *d* at such parts that the brushes *o* may work over the desired parts of the plates *e*—that is, over the thickly or sparsely perforated portions.

I represents a rod which is placed in the front part of the frame A. This rod passes through the front ends of arms J, which are forked at their front parts, and extend back underneath the frame and have tubes K attached to them, one to each, by pivots $c^{\times}$, which pass through either of a series of holes in curved arms $d^{\times\times}$ at the upper ends of the tubes K.

To the back parts of the tubes K curved bars *d* are attached, one to each, and on these bars slotted rods $e^{\times}$ are fitted and secured in dedesired positions by pins $f^{\times}$. To the lower end of each rod $e^{\times}$ a roller, $g^{\times}$, is fitted, said rollers being fitted in forks $h^{\times}$, which are pivoted to the rods $e^{\times}$.

To the front side of each tube K a cutter, $i^{\times}$, is placed. These cutters are transversely of V shape, and are pivoted to the tubes K, as shown at $j^{\times}$, Fig. 1. The upper ends of the cutters are each provided with a curved arm, *k*, and these arms pass through guides attached to one side of the tubes K, the arms $k^{\times}$ being perforated, so that the cutters may be adjusted as desired.

In the front part of the frame A a shaft, L, is placed, said shaft having a series of cranks formed on it, and placed alternately in opposite positions to these cranks bars M are attached. The bars M extend back underneath the frame A, are curved downward at their back ends, and are forked. (See Fig. 6.) The bars M are placed between the tubes K.

Within the seed-box D two bells, N N, are placed. These bells are attached to springs O, and give an alarm when the seed in the box D is low, the bells being prevented from ringing when the seed in the box is above the bells and press upon them, preventing vibration. The cutters $i^{\times}$, as the machine is drawn along, cut all trash, grass, stalks, &c., and a vibratory movement is given the bars M, which, during their backward movement, thrust back the trash, thereby preventing the machine from becoming choked or clogged around the tubes. The shaft L is operated by gearing $v^{\times}$ from the loose wheel B′. The cutters $i^{\times}$ may be placed in a vertical or inclined position, as circumstances may require, and the rollers $g^{\times}$ serve to press the seed that pass through the tubes K into the earth, and also serve to press down the cutters into the earth, and also to gage the depth of furrows made by cutters. If the rollers $g^{\times}$ are not required, they may be elevated free from the ground by adjusting the rods $e^{\times}$, and the pressure on the cutters will consequently be increased.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The employment or use of the cylinder G, provided with step-like projections *j j* between circumferential flanges *h h*, oblique partitions *i*, and zigzag grooves *k*, said cylinders being fitted within a cylindrical case, F, at the bottom of box D, and having a reciprocating rotating motion, as and for the purpose set forth.

2. The arrangement of the adjustable tubes K, attached to the arms J, as shown, the rollers $g^{\times}$, and cutters $i^{\times}$, whereby both the cutters and tubes may be adjusted as desired, and the pressure on the cutters graduated as desired, as also the depth of the furrows made by the cutters.

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