C. ZEITLER.

SMUT MACHINE.

APPLICATION FILED DEC. 11, 1908.

945,896.

Patented Jan. 11, 1910.

2 SHEETS—SHEET 1.

Fig. 1

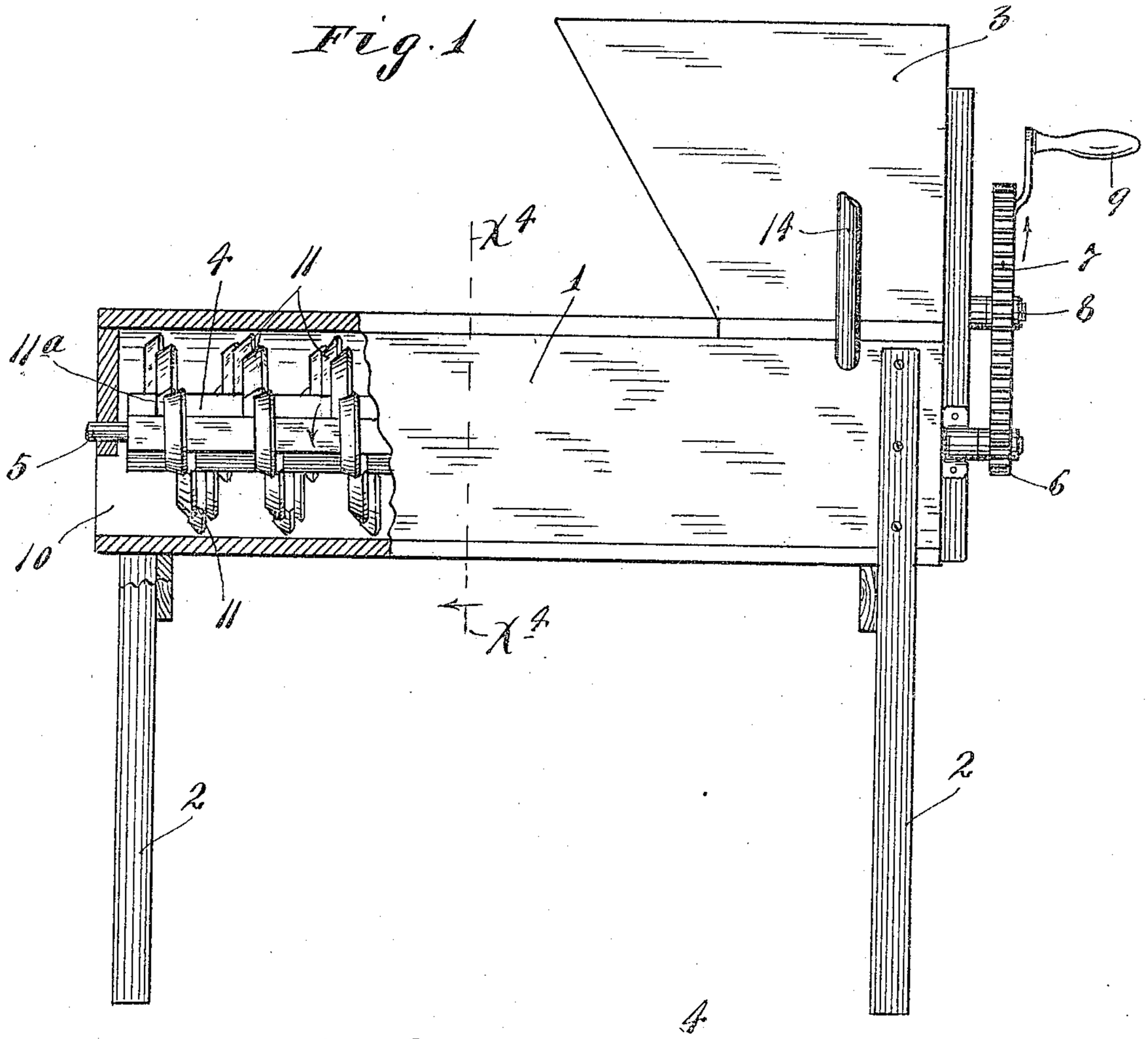


Fig 2

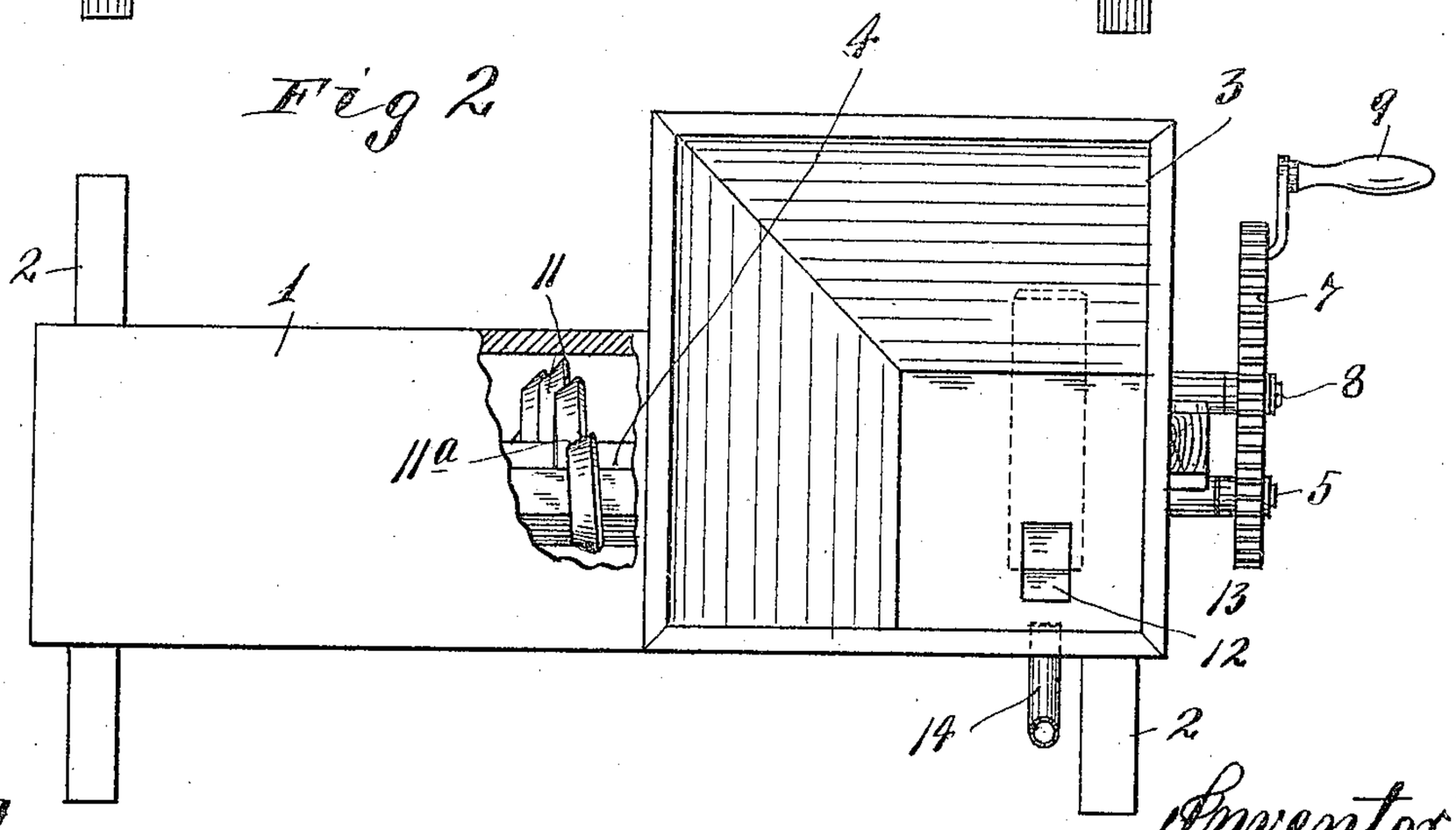


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Fig. 3

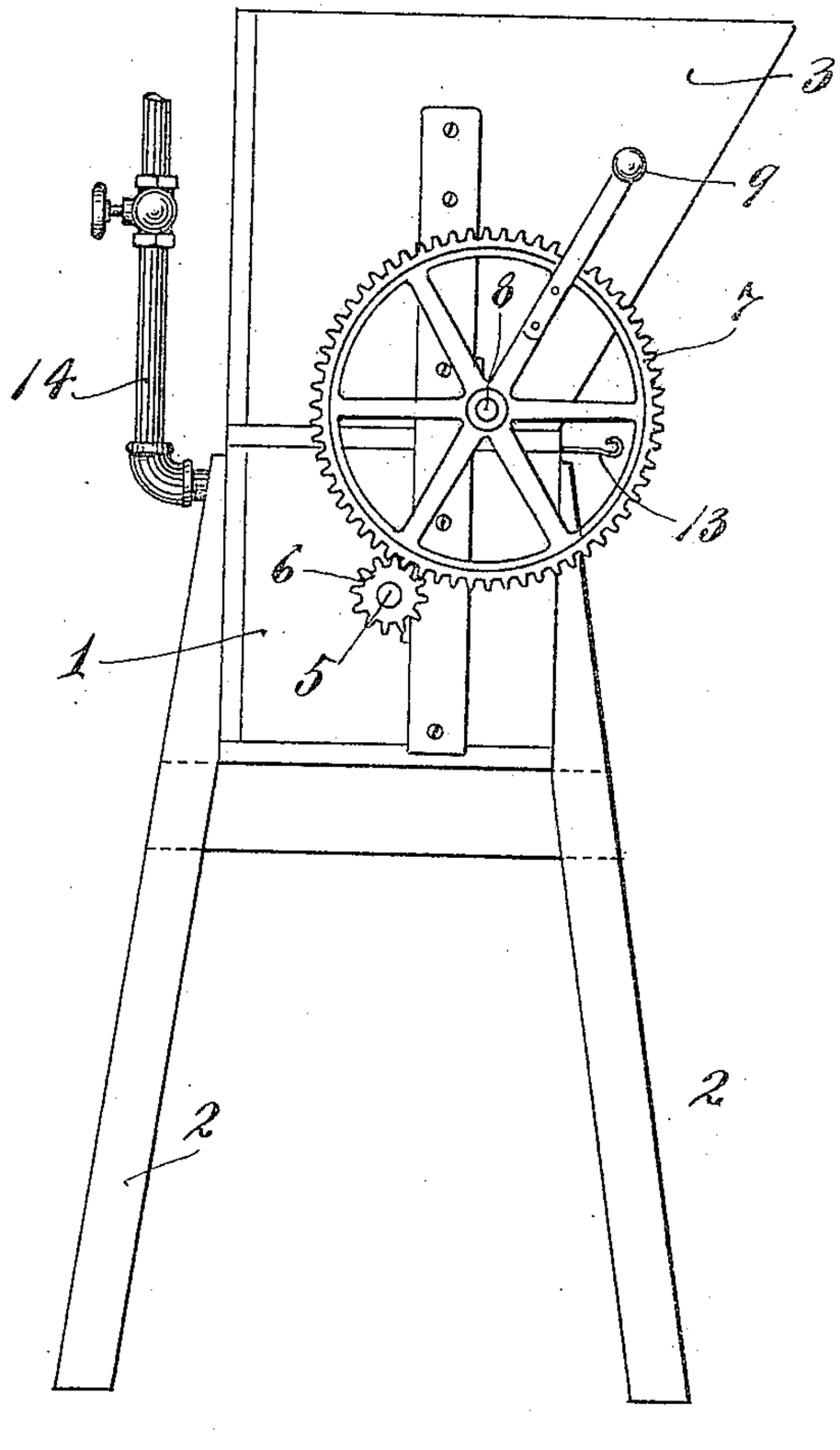
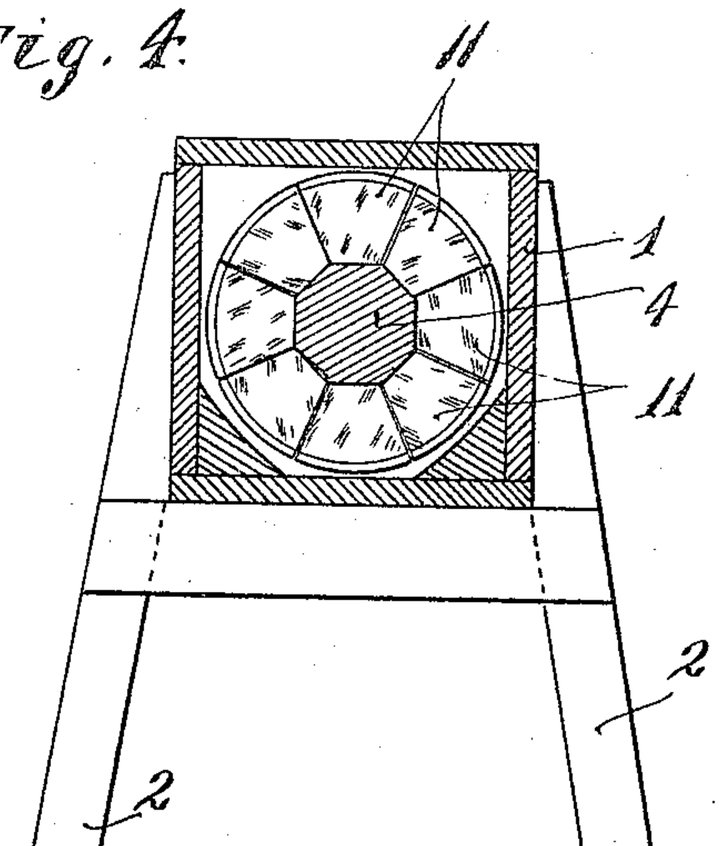



Fig. 4.

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# UNITED STATES PATENT OFFICE.

CHARLES ZEITLER, OF WESTHOPE, NORTH DAKOTA.

## SMUT-MACHINE.

945,896. Specification of Letters Patent. Patented Jan. 11, 1910.

Application filed December 11, 1908. Serial No. 466,970.

*To all whom it may concern:*

Be it known that I, CHARLES ZEITLER, citizen of the United States, residing at Westhope, in the county of Bottineau and State of North Dakota, have invented certion new and useful Improvements in Smut-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its especial object to provide an improved smut machine, and to this end, it consists of the novel devices and combinations of devices hereinafter described and defined in the claim.

It is, as is well known, the common practice to treat wheat, oats, flax and various other seeds, with solution of water and formaldehyde to destroy smut and to kill disease germs. It is important that this germ destroying solution be applied in the smallest possible quantity required to completely cover the seeds. Too great saturation of the seeds is detrimental, and furthermore, is wasteful of the solution. In other words, the seeds should not be soaked in the solution, but should be completely coated therewith, and the solution should not be allowed to collect in quantity while it is being applied to the seeds. My invention provides an extremely simple and highly efficient device for accomplishing this end.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings: Figure 1 is a view in side elevation, showing the improved machine, some parts being broken away; Fig. 2 is a plan view of the machine, some parts being broken away; Fig. 3 is an end elevation of the same; and Fig. 4 is a vertical section taken on the line $x^4$ $x^4$ of Fig. 1.

The body of the machine is in the form of an approximately horizontal closed trough or trunk 1, having a hopper-like bottom, and as shown, supported by legs 2. A supply hopper 3 is secured on top of and opens into one end of the trough 1. Extending axially through the trough 1, is a shaft preferably made up of a polygonal body portion 4 and a metal shaft 5, to which it is secured, the ends of the said shaft 5 being journaled in suitable bearings on the ends of said trough. At the receiving end of the machine, the shaft 5 has a rigidly secured spur pinion 6 that meshes with a spur gear 7 journaled on a stud 8, suitably secured to the adjacent end of the machine frame. The gear 7 is provided with an operating crank or hand piece 9. At its delivery end, the head of the trough or trunk 1 is cut away at its lower portion, as indicated at 10, to afford a suitable discharge passage.

Secured to the wooden body portion 4 of the shaft above described, are a plurality of spirally arranged propelling blades 11. These spirally arranged propelling blades are set with their radially extended edges in close contact, but each is laterally offset in respect to the other, so as to afford exposed radially extended lifting shoulders or ledges $11^a$. In effect, these offset spirally arranged propelling blades 11 form a spiral propelling flange having a multiplicity of lifting shoulders or ledges. By reference to Fig. 4, it will be noted that the edges of the blades 11 extend radially outward on lines that intersect the angles of the polygonal body portion 4.

The supply hopper 3 is provided in its bottom with a discharge passage 12, that is adapted to be opened and closed by a suitable valve 13, as shown, afforded by a simple sliding blade.

The liquid containing the formaldehyde is supplied to the trough or trunk 1 at the receiving end thereof from a suitable elevated receptacle not shown, through a valved supply pipe 14, the lower end of which preferably terminates in a position to discharge the liquid onto the seed or grain as it falls from the hopper discharge passage 12 into the said trough or trunk 1.

In the operation of the machine, the gear wheel 7 should be rotated in the direction of the arrow marked adjacent thereto on Fig. 1, so that the spiral conveyer made up of the blades 11 and the shaft which carries the same, will be rotated in the direction of the arrow marked thereon in the same view. Under this direction of rotation of the said spiral conveyer, the seed or grain delivered into the trough or trunk 1 from the supply hopper 3, will be commingled with the formaldehyde solution and will be fed from the receiving end toward the delivery end of the machine, and will be discharged out of the passage 10. The spiral conveyer will be given quite high rotation, so that its numerous lifting shoulders or ledges $11^a$ will repeatedly pick up the seeds

or grain, throw the same about within the closed trough or trunk, and thus very thoroughly and evenly commingle all particles of the same with the liquid solution.

In actual practice this machine has been found highly efficient for the purposes had in view. With a small machine, I have properly treated with formaldehyde solution, 150 bushels of grain in one hour.

What I claim is:

In a machine of the kind described, a conveyer comprising a polygonal shaft and a multiplicity of spirally arranged propelling blades, offset laterally less than their width and closely engaging one another to afford a multiplicity of lifting shoulders or ledges, the edges of said blades extending radially outward on lines that intersect the angles of the said shaft.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES ZEITLER.

Witnesses:
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ALICE J. SWANSON.