# W. SECK.

## Grain Decorticators.

No. 166,416. Patented Aug. 3, 1875.

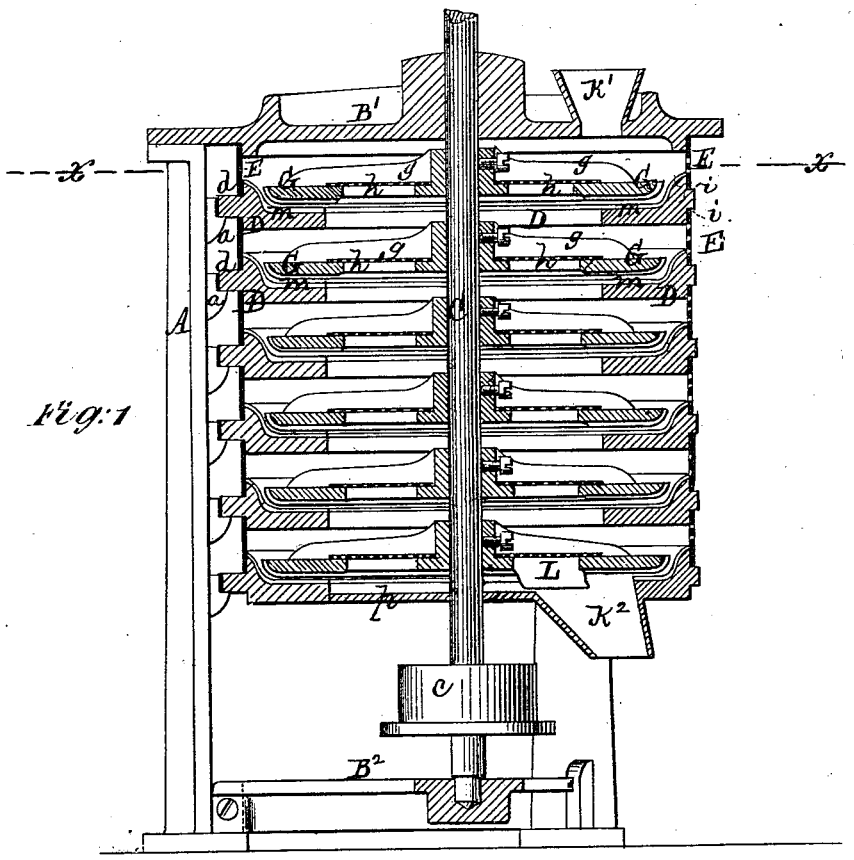



Fig: 1

Fig: 2

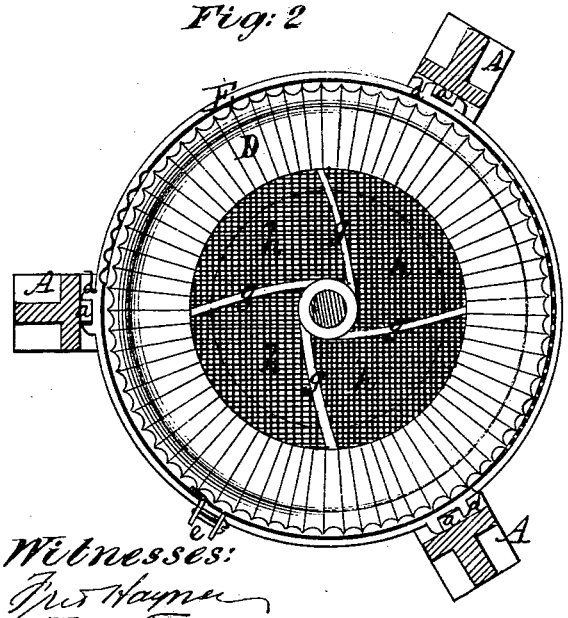
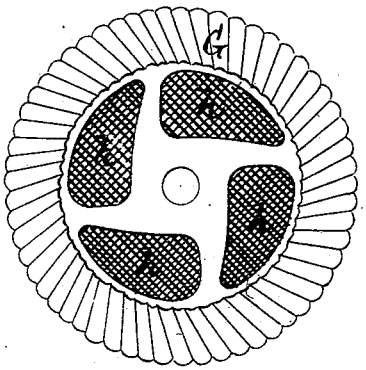



Fig: 3




Witnesses:
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# UNITED STATES PATENT OFFICE.

WILHELM SECK, OF BOCKENHEIM, PRUSSIA.

## IMPROVEMENT IN GRAIN-DECORTICATORS.

Specification forming part of Letters Patent No. **166,416**, dated August 3, 1875; application filed May 4, 1875.

*To all whom it may concern:*

Be it known that I, WILHELM SECK, of Bockenheim, in the Kingdom of Prussia, have invented certain Improvements in Decorticators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms part of this specification.

My invention consists in a novel construction and combination of a series of stationary annular radially-fluted plates and a series of revolving tangentially-fluted disks, whereby the centrifugal force is, in a measure, overcome, and a centripetal motion is imparted to the grain, and the decorticating and cleaning operation is performed in a thorough manner during the passage of the grain from the periphery toward the center.

In the accompanying drawing, Figure 1 is a central vertical sectional view of a machine constructed according to my invention. Fig. 2 is a transverse horizontal section taken in the line *x x* of Fig. 1. Fig. 3 is a bottom view of one of the revolving disks.

A represents one of a series of standards or columns, preferably of T shape in cross-section, connected at top and bottom by cross-bars $B^1$ $B^2$. C is a vertical shaft, having its bearings in the upper and lower cross-bars $B^1$ $B^2$, and provided with a pulley, *c*, for driving it by means of a belt. D represents an annular cast-metal plate, the periphery of which is provided with lugs *d*, having holes or notches, which engage with hooks or lugs *a* on the standards A, by which means the ring is held in place. Any desired number of these annular plates are thus placed in position, and the intermediate spaces between them are filled by bands E of sheet metal, having their ends secured together by screws *e*, or in any other suitable manner, and having perforations in their entire surface, or a portion thereof, the portion which is not perforated being corrugated in a vertical direction. The upper surface of each of the annular plates D is inclined upward toward the periphery, and is grooved or fluted in a radial direction, the extreme outer edge of the fluted portion assuming a nearly vertical direction. G is a cast-metal plate or disk, secured to the vertical shaft C by screws, keys, or any other suitable means, so as to turn with said shaft. A number of these disks G are thus attached to the shaft, corresponding with the number of annular plates D, and are arranged thereon so as to revolve above the annular plates at a distance sufficient to allow two or more layers of grain in the space *m*, between the upper surface of the annular plate and the lower surface of the disk. The plates G are formed with openings between their center and circumference, which openings are covered with wire-gauze, forming sieves *h*. On the upper side of each of the plates G are wings *g*, cast with the plate, corresponding in number with the number of openings covered by the screens *h*, and occupying positions between said openings, extending from the hub or center of the plate toward the circumference in the directions tangential to the hub or center. At the outer edges of the annular plates D are shoulders or rabbets *i*, in which fit the upper and lower edges of the sheet-metal bands E. When the parts are in place the bands and the outer edges of the plates D fit closely to each other, and form a cylindrical surface. A portion of the band E is perforated to form a sieve, and the other portion may be corrugated in a vertical direction, as shown.

The apparatus is provided with a hopper, $K^1$, for feeding the grain thereto, and with a spout, $K^2$, for delivering it therefrom. The lowermost plate or disk G carries a number of downwardly-extending wings, L, on its under side, and the bottom plate *p* of the apparatus is arranged a sufficient distance below the lowermost plate D to allow the wings L to move freely as the disk G revolves.

The operation is as follows: The shaft C being in motion at a velocity of from two hundred and fifty to three hundred revolutions per minute, the grain is fed in through the hopper $K^1$, from whence it falls upon the upper side of the first disk G. It is then, by the centrifugal force, aided by the wings *g*, thrown outward against the cylindrical sieve or band J, until it becomes so heaped up that a portion falls by its own weight into the space *m*, between the stationary annular plate D and revolving disk or plate G, to a depth of two or more layers. As the shaft C revolves, the tan-

gentially-fluted disk G has a tendency to carry with it the grain in the uppermost layer, and the radially-fluted stationary annular plate D has a tendency to retard the grain in the lowermost layer, while the grain lying between these two layers is subjected to a motion somewhat resembling that of rubbing a quantity of grain between the hands. During this process a portion of the grain is carried toward the center, and falls upon the top of the second revolving plate or disk G, is again thrown outward by centrifugal force, and again falls into the space *m*, between the second disk and the second annular plate, and goes through the rubbing operation before described, which operation is continued until the grain reaches the lowest one of the annular plates, from which it falls to the bottom *p*, and is swept by the wings L into the spout $K^2$, through which it passes to a receptacle below. As the grain passes through the apparatus the draft or current of air caused by the revolution of the disks and their attached wings passes upward through the sieves *h*, and circulates through the grain, passing out through the perforated band or cylindrical sieve J, and carrying with it all dust, dirt, and impurities, and depositing the same outside of the apparatus. By this process the grain is thoroughly decorticated, and deposited in a perfectly clean condition after passing through the apparatus, and the impurities are entirely separated and carried away.

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

The annular plates D, having a horizontal radially-fluted surface, in combination with the horizontally-fluted revolving disks G, having openings between their center and periphery, and provided with sieves *h*, arranged in said openings, and extending from the center of the disks toward its circumference, all substantially as and for the object shown and described.

WILHELM SECK.

Witnesses:
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