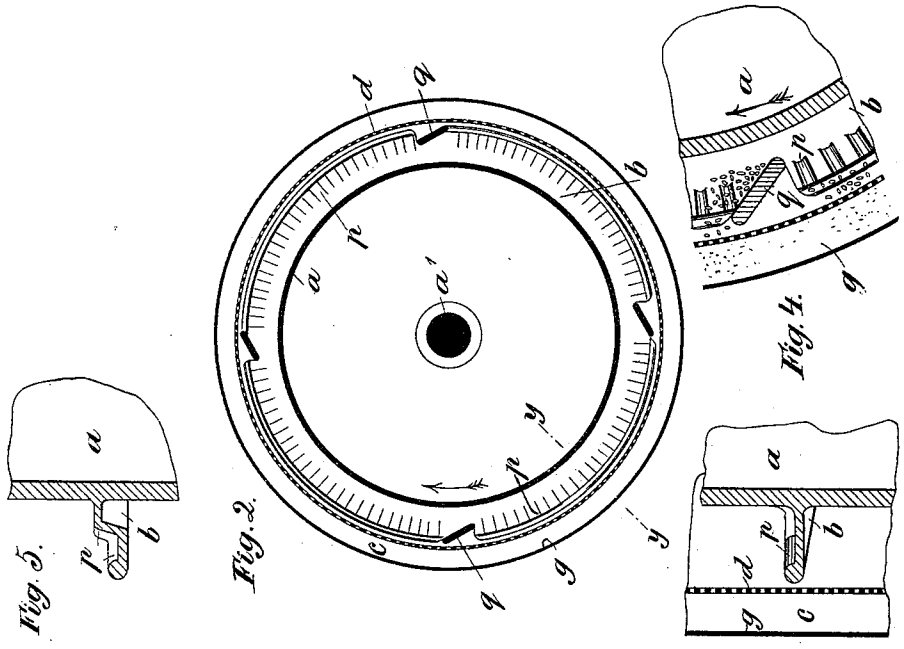
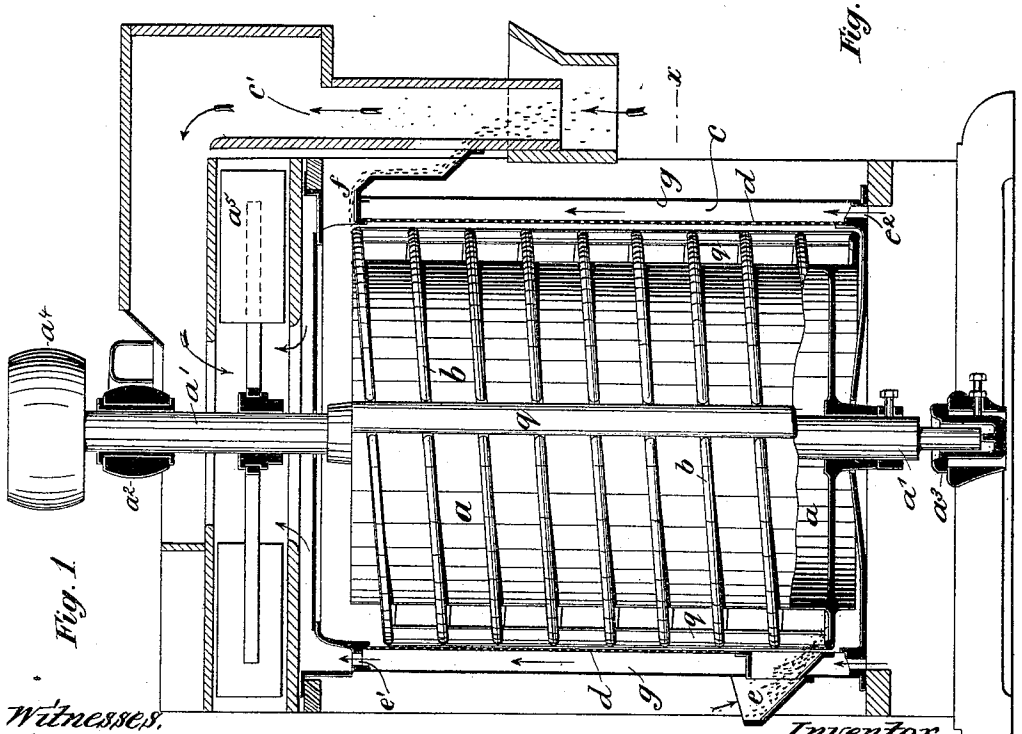
(No Model.)

H. SECK.

GRAIN SCOURER.

No. 403,389. Patented May 14, 1889.





Witnesses.
Percy B. Hill.
Robert Burnett.

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UNITED STATES PATENT OFFICE.

HEINRICH SECK, OF DRESDEN, SAXONY, GERMANY.

GRAIN-SCOURER.

SPECIFICATION forming part of Letters Patent No. 403,389, dated May 14, 1889.

Application filed September 25, 1888. Serial No. 286,384. (No model.)

To all whom it may concern:

Be it known that I, HEINRICH SECK, of the city of Dresden, in the Kingdom of Saxony and German Empire, have invented a certain new and useful Improvement in Grain-Scouring Apparatus, of which the following is a specification.

This invention relates to that type of vertical grain-cleaning apparatus wherein a cylinder having an external helical rib revolves within a surrounding casing; and my invention has for its object to improve such grain-cleaners and render them more perfect and efficient in operation.

The object of my invention I accomplish by the features of construction and combination of devices hereinafter specified in the claim, reference being made to the accompanying drawings, in which—

Figure 1 is a vertical sectional elevation of a grain-cleaning machine embodying my invention. Fig. 2 is a transverse sectional view taken on the line $x\ x$, Fig. 1. Fig. 3 is a detail sectional view taken on the line $y\ y$, Fig. 2. Fig. 4 is a detail transverse sectional view of a part of the cylinder and its helical rib, showing portions of the perforated casing, the closed external case, and one of the blades. Fig. 5 is a detail sectional view showing a variation in the form of the helical rib.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, where the letter *a* indicates a cylinder fixed in any suitable manner upon a vertical shaft, a', supported in upper and lower bearings, a^2 a^3, and having a pulley, a^4, by which it can be revolved. The cylinder is provided with a helical rib, *b*, extending from the top to the bottom of its periphery, and to the rib at intervals are secured vertical blades *q*, located in positions oblique to the cylinder-surface and extending in the direction of the revolution of the cylinder, such blades being so supported by the helical rib as to leave spaces between their inner edges and the surface of the cylinder.

The upper surface of the helical rib may be provided with radial or similar ridges or ribs *p*, for increasing the frictional effect on the grain. The oblique or angular position of the blades relative to the path of motion of the helical rib is preferably about thirty degrees; but this may be varied, and for this purpose the blades may be made adjustable. The cylinder and its helical rib are surrounded by an annular perforated casing, *d*, having at one side of its lower end an inlet, *e*, for the grain, and at the opposite side of its upper end a grain-outlet, *f*, and around the perforated casing is located an annular imperforate case, *g*, so arranged in relation to the former as to provide an intervening annular chamber or space, *c*, through which air is drawn upwardly by an exhaust or suction fan, a^5, located above the cylinder and mounted on the vertical shaft thereof.

The casing of the exhaust-fan is provided with a downwardly-extending channel, c', which passes by or communicates with the grain-outlet *f*, in order to draw up and remove any impurities that may be carried by the grain in its passage through the grain-outlet, and such casing of the fan is in direct communication by the channel e' with the top portion of the space *c* between the perforate and imperforate casings to draw air upwardly therethrough. The lower end of the chamber *c* is provided with air-inlet openings e^2.

The grain to be cleaned or scoured is fed into the inlet-opening *e* and is acted on by the helical rib *b*, which lifts the grain and by centrifugal force projects it against the perforated casing *d*. The oblique blades *q* convey the grain so projected back to and upon the inner part of the helical rib, so that the grain is rubbed against the surface of said rib, while the grains are individually rubbed against each other.

The impurities separated from the grain and passing laterally through the perforated casing *d* into the annular space *c* are drawn upward by the exhauster or fan.

The helical rib is provided with angular recesses, as clearly shown in Fig. 4, to receive the obliquely-arranged blades *q*, and by the means described the grain is efficiently scoured and cleaned of all impurities.

The helical rib may be substantially straight in cross-section, as in Fig. 3, or angular, as in Fig. 5, to increase its frictional action on the grain.

In grain-cleaners comprising a cylinder having a helical rib, as heretofore constructed,

without the oblique or angular blades, the particles of grain are driven by centrifugal force from the helical rib against the casing, and do not return sufficiently far upon the surface of the rib to produce the necessary scouring action by frictional contact with the surface of the rib; but by the oblique or angular blades, as in my invention, the grain projected against the perforated casing is conveyed back upon the inner part of the helical rib, and the efficiency of the machine is thereby largely increased and the cleaning operation rendered more satisfactory.

By the term "imperforate" as applied to the external case, *g*, it will of course be understood that it refers to the vertical side wall thereof.

What I claim is—

The combination of an upright perforated casing, a revolving cylinder having a helical rib on its periphery, and vertical blades secured to the rib in a position oblique to the cylinder-surface and in the direction of revolution of said cylinder and leaving spaces between them and the surface of the cylinder, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HEINRICH SECK.

Witnesses:
EMIL DOMSCH,
MAX KLIPPHAHN.