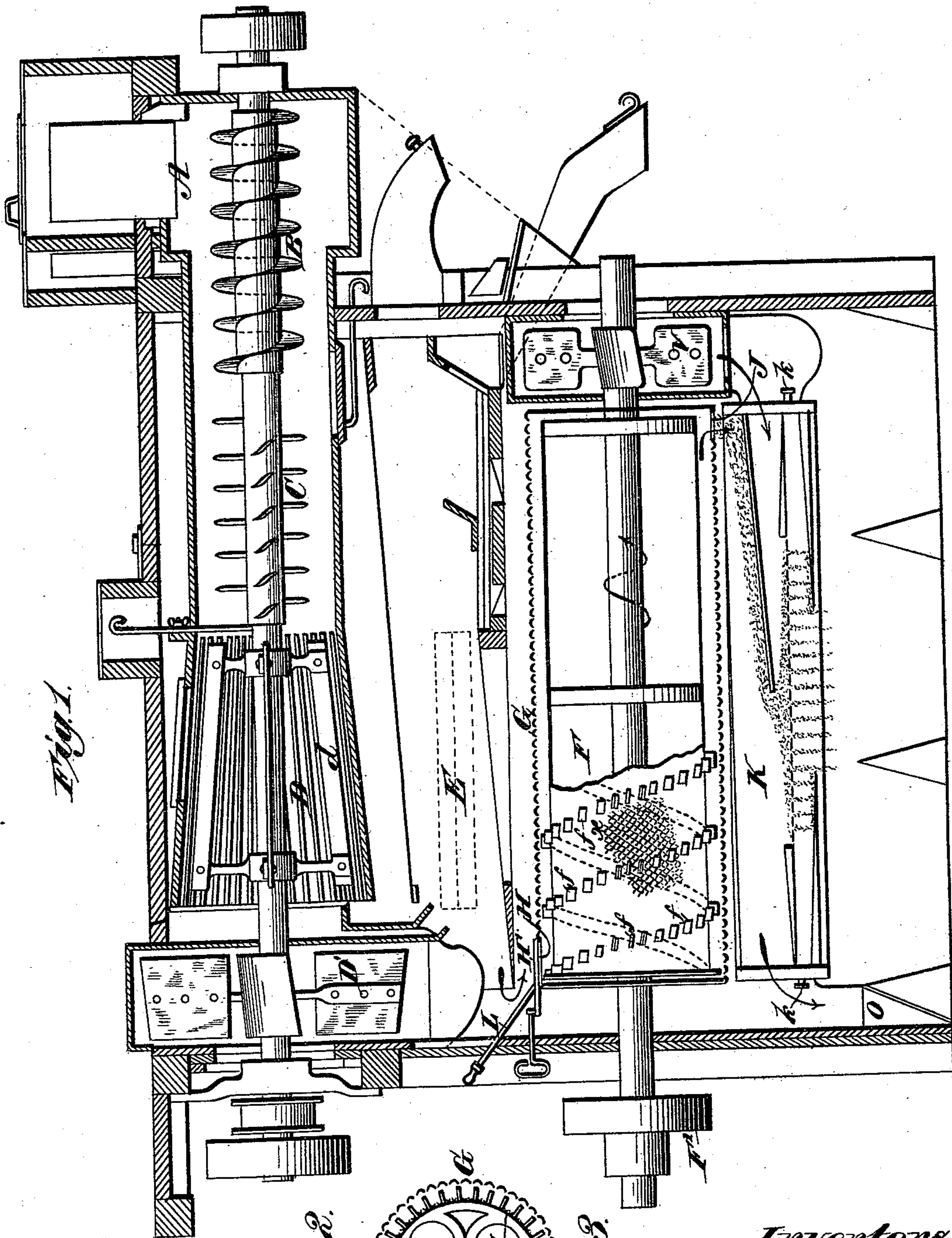


(No Model.)

J. SZAWINSKY & S. GROZEA.
GRAIN SCOURING APPARATUS.

No. 455,132.

Patented June 30, 1891.



Witnesses.
Adolf Smith
A. H. Norris.

Fig. 2.

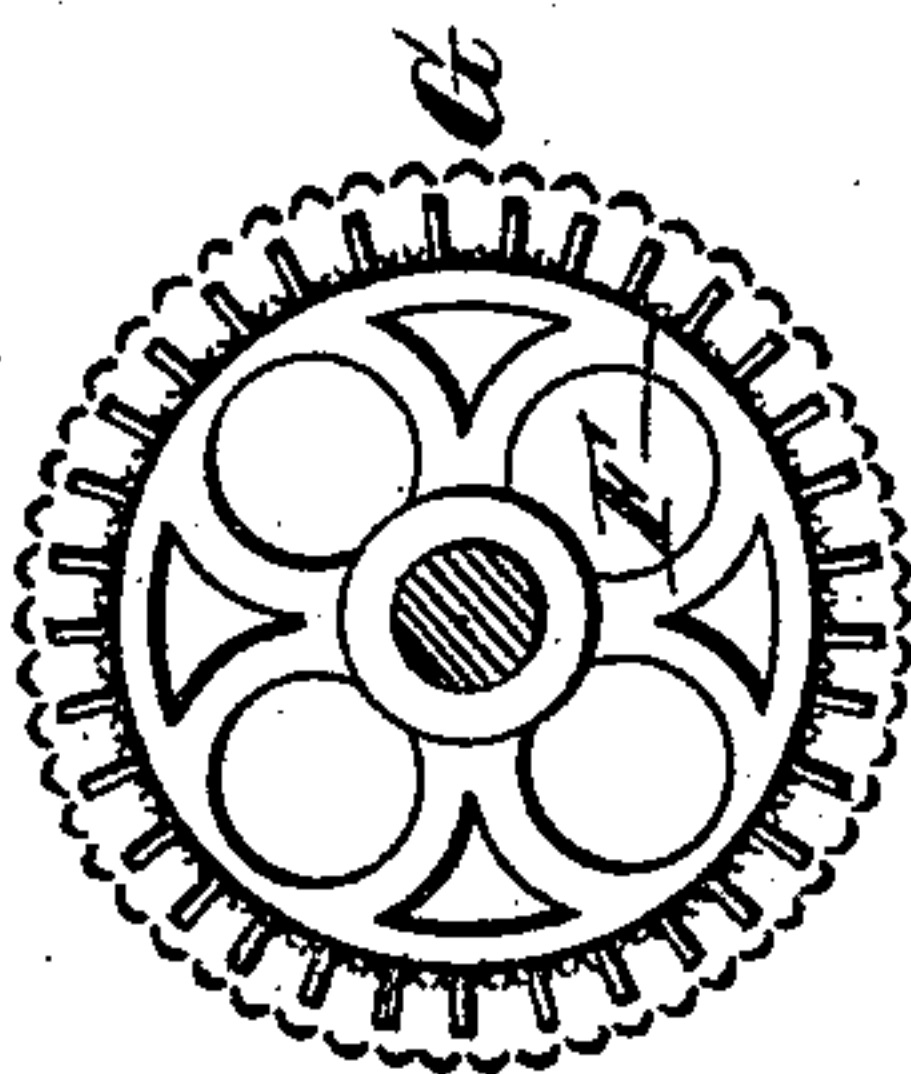


Fig. 3.

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UNITED STATES PATENT OFFICE.

JULIUS SZAWINSKY AND STELIAN GROZEA, OF BRAILA, ROUMANIA.

GRAIN-SCOURING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 455,132, dated June 30, 1891.

Application filed February 3, 1891. Serial No. 380,108. (No model.)

To all whom it may concern:

Be it known that we, JULIUS SZAWINSKY, machinist, and STELIAN GROZEA, merchant, both residents of Braila, in the Kingdom of Roumania, Europe, have invented certain new and useful Improvements in Grain-Scouring Apparatus; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to apparatus for hulling, polishing, and cleaning barley for use in connection with thrashing-machines. By the apparatus constructed according to the said invention the barley is not only freed from chaff and weeds, but the grains are also hulled, polished, and cleaned, so that they obtain a bright color and a smooth surface and become hard and thin shelled, or, in short, acquire all the properties which distinguish barley of the best quality. Heretofore the thrashed barley has not been hulled and polished in the thrashing-machine itself, use being made of the special apparatus for this purpose.

The improved apparatus comprises a drum of sheet-iron or sheet-steel, which is adapted to rotate through the medium of the main or other suitable shaft of the thrashing-machine. This drum is provided on its periphery with fine teeth similarly to a grater, and, furthermore, with small vanes arranged in spiral lines upon its periphery. It is inclosed in a casing likewise made of sheet-iron or sheet-steel, which closely surrounds the aforesaid drum. Upon its inner surface the said casing is provided with numerous fine elevations similar to those of a grater, against which the grains of barley to be hulled and polished are forced by the vanes on the drum. By reason of the spiral arrangement of the said vanes the grains of barley are conducted from the end of the drum which is opposite the inlet, to the other end, where they are cleansed by means of an air-current from the adhering impurities—chaff and the like. Finally, the grains are freed upon shaking sieves from such parts as may still adhere to them, and are sifted at the same time.

In the accompanying drawings, Figure 1 represents the improved apparatus in verti-

cal transverse section, taken through the part of the thrashing-machine which is situated behind—that is to say, at the point where the grains arrive after they have been thrashed from the straw. Fig. 2 shows a vertical transverse section taken through the improved hulling and polishing drum, and Fig. 3 shows one of the small vanes with which the hulling and polishing drum is provided.

After the separation of the grains from the straw has taken place in the thrashing-machine, the grains are transported in the well-known manner to the point A, where the said operations commence. From this point the grains are conveyed by the screw B and fingers C to the left-hand side into a drum D, in which beaters *d* operate to throw them against the sides of the drum, and thereby free them from the adhering coarser dirt. The chaff and the grains are next caused to pass upon a sieve E, where the chaff is blown away by means of an air-current produced by a fan D'. Now, if the barley after it has been thrashed is also to be hulled, polished, and cleaned, we arrange the improved apparatus in the thrashing-machine. The drum F employed in this apparatus is preferably made of sheet-steel. Its outer periphery is provided with numerous fine elevations, (partly shown at *x*,) which may be produced in a similar manner as is the case with sheet metal for graters, the sheet metal being punched from the inside by means of a triangular or square-pointed tool, so that the sharp edges produced on the other side of the sheet metal serve as rubbing and cutting edges. The said drum has, moreover, small vanes *f*, arranged in spiral lines upon its outer periphery, upon which they are riveted or otherwise fixed. These vanes are at a distance of about three centimeters from each other, and their height is such that they leave only very little clearance—say about half a millimeter—between them and the inner periphery of the casing which surrounds the drum F. (See also transverse section, Fig. 2, and a single vane, Fig. 3.) The vanes present somewhat oblique surfaces, so that they will push the grains of barley before them and toward the extremity of the drum. Owing to the spiral arrangement of the vanes on the drum the rotation of the latter causes the grains to move to the end

of the said drum, when the drum is rotated in the direction of the arrow. This rotation is effected through the medium of a belt-pulley connected with the main or other suitable shaft of the thrashing-machine. The casing G, which surrounds the drum, is immovably fixed in the thrashing-machine, and is roughened like a grater upon its inner surface in a similar manner as the drum F. As shown in Fig. 2, the points of the elevations thus formed on the casing are turned toward the drum, so that the grains of barley passing between the drum and casing are acted upon by both.

An inlet H and outlet J are provided in the casing G. The grains of barley coming from the above-mentioned sieve E fall upon an inclined slide or flap L, which can be opened and closed from the outside and are thence admitted to the interior of the casing through the inlet H, which latter is adapted to be closed by a slide H' in case the barley does not require to be hulled, polished, and cleaned. Then the grain drops by the side of the drum immediately into the lower part of the machine. When the aforesaid inlet H is not covered the grains of barley are conducted to the drum and are hulled and polished in the above-described manner as the vanes cause them to pass to the outlet J in the casing. On leaving the drum through outlet or chute J the hulled and polished grains fall upon a sieve stretched, as usual, in a frame, which is suspended in a suitable manner, and possesses a journal *k* on either side. Each of these journals *k* is connected through the medium of a draw-rod with a crank-shaft driven in any suitable manner from the main shaft of the thrashing-machine, preferably by means of belts. By reason of the rotation of this crank-shaft (which is not specially shown) the journals are rapidly moved to and fro, so as to shake the sieve and cause the barley falling upon it to be sifted in an appropriate manner. As the barley leaves the casing around the drum and passes over the inclined board K to the sieve, it is cleansed from the adhering dirt through the medium of an air-current produced by a fan V, which current carries away the chaff from the grain and transports it over the aforesaid sieve to the outlet O. In case other

corn than barley is to be thrashed—that is to say, when the hulling, polishing, and cleaning operations hereinbefore described are not required—the slide or flap L is closed, and the action of the drum is discontinued by throwing off the two belts for actuating the drum and shaking sieve, the thrashing taking place in the ordinary manner. The corn does not then pass to the drum, but drops past the same directly to the lower part of the thrashing-machine.

What we claim is—

1. The combination, with a stationary drum rotating beaters within the drum and a conveyor for moving the grain into the drum, of a sieve arranged below the drum and receiving the grain therefrom, a stationary casing arranged below the sieve, provided with an interior roughened surface, and having at one end an inlet-opening and at the opposite end an outlet-opening, a rotating drum arranged within the casing and having its surface provided with a series of teeth and a vane extending in spiral lines around the drum, a slide controlling the inlet-opening of the casing, and an inclined slide or flap receiving the grain from the sieve and serving to direct it to the inlet-opening of the casing, substantially as described.

2. The combination, with a sieve and means for delivering the grain thereupon, of a stationary casing arranged below the sieve, provided with an internal roughened surface, and having at one end an inlet-opening and at the opposite end an outlet-opening, a rotating drum arranged within the casing and having its surface provided with a series of teeth, and a vane extending in spiral lines around the drum, a slide for controlling the inlet-opening of the casing, and an adjustable inclined slide arranged at one end of the sieve, receiving the grain therefrom and directing it to the inlet-opening of the casing, substantially as described.

In testimony thereof we have hereunto set our hands this 11th day of December, 1890.

JULIUS SZAWINSKY.
STELIAN GROZEA.

Witnesses:

J. LEMAN,
A. SIEBER.