No. 778,193. PATENTED DEC. 20, 1904.

J. H. F. L. HARTMANN.

GRAIN DECORTICATING AND GRINDING MACHINE.

APPLICATION FILED NOV. 28, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

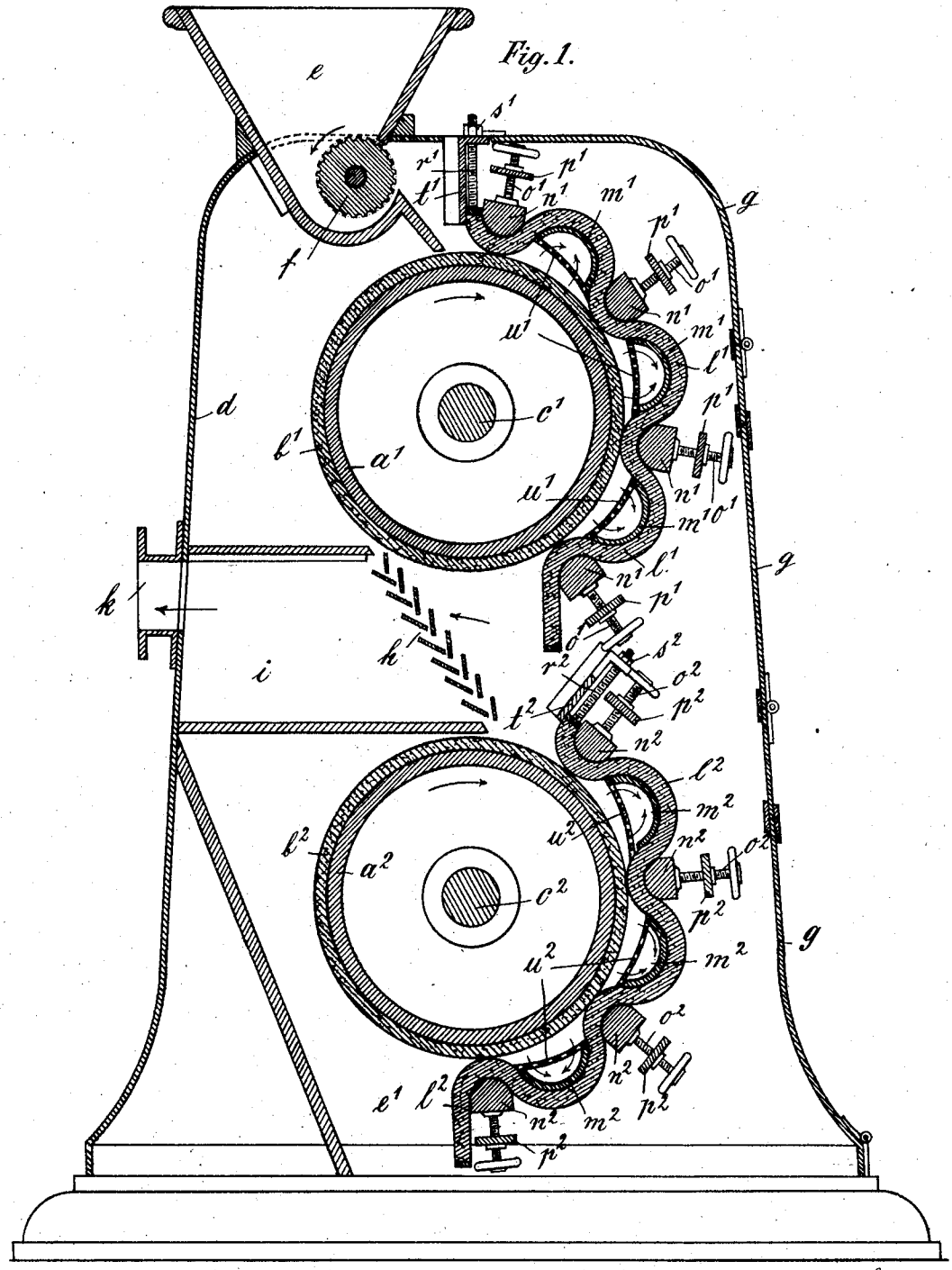

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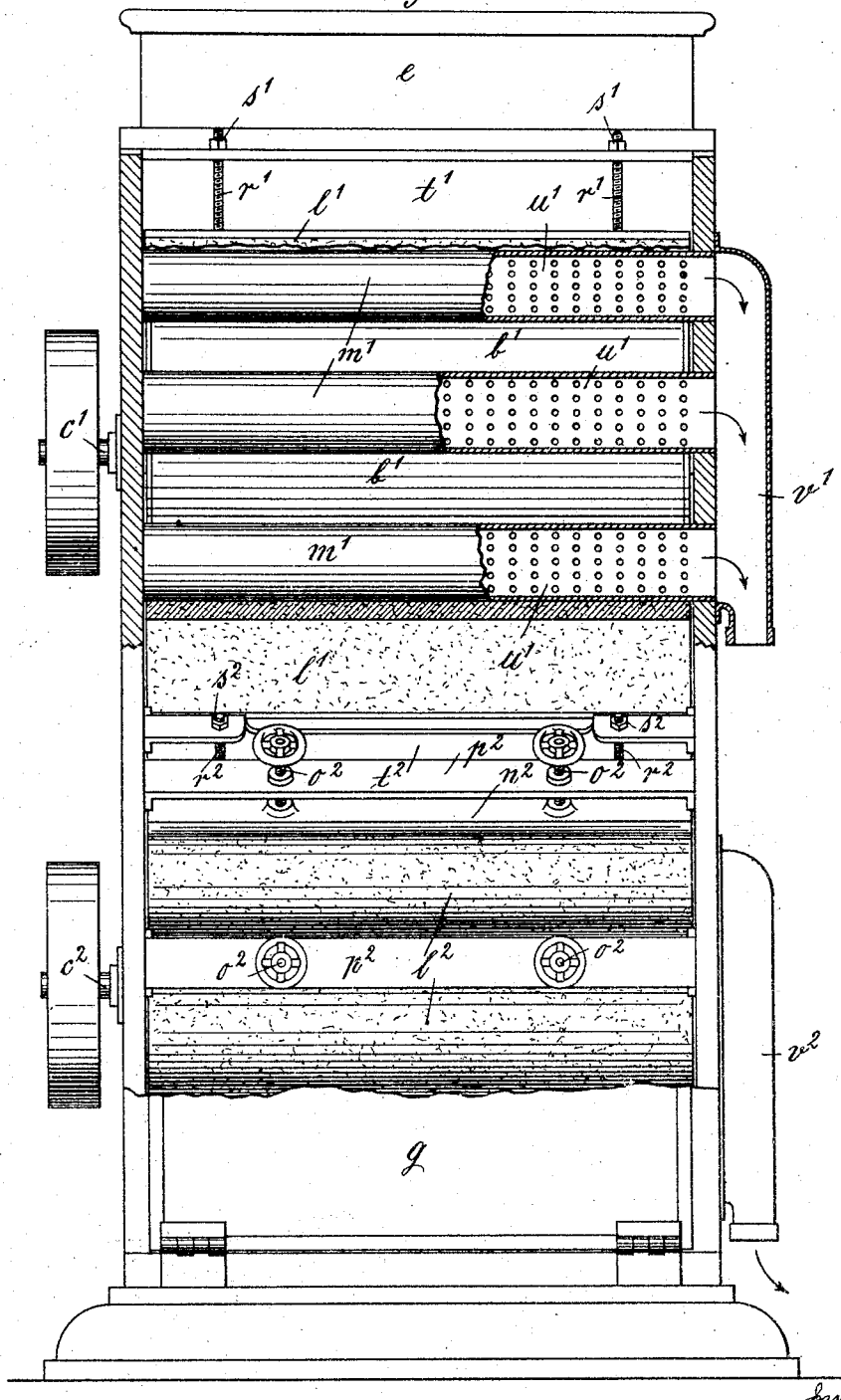
Fig. 2.



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UNITED STATES PATENT OFFICE.

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GRAIN DECORTICATING AND GRINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 778,193, dated December 20, 1904.

Application filed November 28, 1902. Serial No. 133,102.

To all whom it may concern:

Be it known that I, JOHANN HEINRICH FRIEDRICH LOUIS HARTMANN, a subject of the German Emperor, and a resident of Hamburg, Germany, have invented certain new and useful Improvements in Grain Decorticating and Grinding Machines, of which the following is a specification.

The present invention relates to improvements in grain decorticating and grinding machines for removing the cuticle or outer hull from cereals and the like, and more particularly refers to that class of decorticating-machines in which a suitable decorticating or grinding drum, roughened or provided on its outer periphery with a suitable decorticating-surface, revolves in a suitable casing and cooperates with a suitable stationary grinding surface or shell wholly or partly encircling or surrounding the said decorticating-drum, the latter and the stationary grinding-drum being set at such distance apart as to give the requisite trituration and to rasp off the cuticle or hull from the grain, &c., without mashing the latter.

The improvements relate especially to the formation, construction, and arrangement of the stationary grinding-shell and to the means for adjusting the same; and with this end in view my invention consists in certain novel features of construction and combinations of parts, as will be hereinafter fully described, and pointed out in the claims, with reference to the accompanying sheet of drawings, in which—

Figure 1 is a vertical cross-section of a decorticating and grinding machine made in accordance with and embodying my invention; and Fig. 2 is an elevation of the machine as it appears after the removal of the front wall of the machine-casing, the undulated grinding-shell for the upper decorticating-drum being broken away and the outer adjusting-bars for the said grinding-shell removed in order to show its inner tubular supporting-bodies, which are shown partly in section.

Similar letters refer to similar parts throughout both figures.

In the example shown two revolving horizontal drums a' and a^2, faced with suitable decorticating-surfaces b' and b^2, respectively, are mounted with their shafts c' and c^2 in a suitable casing d, provided with a plurality of hinged doors g, giving or allowing access to the interior of the said casing. At the top of the casing is a suitable feeding-hopper e, provided with a feed-roller f of any well-known construction, and at the bottom of the casing a suitable outlet e' for the decorticated grain, &c.

Between the two decorticating-drums a' and a^2, preferably arranged one above the other a suitable distance apart, there is arranged a grating h, forming the front end wall of a chamber i. This chamber is in communication through an outlet k with a ventilator or other sucking device (not shown in the drawings) adapted to suck off, through the grating h, chamber i, and outlet k during the operation of the machine, the hulls, dust, &c.

In front of the drum a' is arranged a grinding-shell l', consisting of any suitable elastic or flexible material—such as leather, emery-cloth, and the like—and being placed in such an undulated trace around the drum a' that the operative decorticating-faces are formed by the facing b' of the drum a' and by the ridges—that is to say, the points of the undulated grinding-shell l' which are nearest to the said drum a' b'. The parts or faces of the grinding-shell l' which are remote from the drum and which form the troughs or depressions between each two ridges remain inoperative. To retain the flexible grinding-shell l' in the desired undulated form or position, tubular supporting-bodies m', preferably of semicircular cross-section, are inserted into the inner depressions of the said grinding-shell, while into the outer depressions of such shell are placed suitably-shaped bars n', or, in other words, the flexible grinding-shell l' is alternately wound between inner and outer supporting-bodies of suitable form and shape. The position of the bars n', and consequently the spacing distance between the ridges of the grinding-shell l' and the drum a' b', may be properly adjusted by means of screw-threaded adjusting-spindles o', working in suitable nuts

of a cross connection p', attached in any suitable manner to the walls of the casing d. The walls u' of the hollow bodies m', supported by the side walls of the casing d in any suitable manner, may be perforated in order to allow a part of the dust produced during the decorticating operation to enter or to be sucked into the interior of the hollow bodies m' and carried away through a suitable conduit v' by means of a ventilator or the like in communication with said conduit and the interior of the bodies m'. As the ventilator device to be connected with the exhaust-conduit v' may be of any well-known construction, it is not shown in the drawings.

One end or edge, preferably the upper one, of the grinding-shell l' is attached to two or more screw-threaded adjusting-spindles r', suspended from a suitable cross connection t' of the casing and adapted to be adjusted therein as to height or position by means of nuts s'. When the cross and guide bars n' have been somewhat removed by loosening or screwing back the spindles o', the grinding-shell l' is free to be drawn upward. This may be effected by raising the screw-spindles r' by means of the nuts s'. As the grinding-shell is drawn upward other parts of its surface will come into the operative position opposite to the drum a' b', or, in other words, other parts of the surface of the grinding-shell surface are caused to form the operative ridges and may be secured in such position by again screwing home the bars n' or their spindles o', respectively. Thus worn-out or chafed parts of the grinding-shell may be replaced by adjacent fresh or sound parts and the whole surface of the grinding-shell step by step used for the grinding operation. After the whole inner surface of the grinding-shell has been worn out the grinding-shell l' may be reversed and its outer surface used up in the same manner.

The grinding-shell l^2 shown in connection with the lower decorticating-drum a^2 b^2 c^2, its supporting, guiding, and adjusting means m^2 n^2 o^2 p^2 r^2 s^2 t^2 u^2 v^2 are of the same form, construction, and arrangement as that described in connection with the grinding-shell l', and need, therefore, no further detailed description.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a decorticating-machine, the combination with a decorticating-drum, of a plurality of supporting-bodies radially mounted in close proximity thereto, and a flexible decorticating-body interwoven between said supports.

2. In a decorticating-machine, the combination with a decorticating-drum, of a plurality of adjustable supports radially mounted in close proximity thereto, a hollow support mounted between each adjustable support, a perforated wall in each hollow support, and a flexible decorticating-body interwoven between the supports so as to lie between the adjustable supports and the drum.

3. In a decorticating-machine, the combination with a decorticating-drum, of a plurality of adjustable supports parallel to the axis of the drum, a hollow parallel support between each adjustable support, a perforated wall in each hollow support, a flexible decorticating-body interwoven between the hollow and adjustable supports and adapted to lie between the adjustable supports and the drum, and means for adjusting the flexible decorticating-body transversely to the supports.

4. In a decorticating-machine, the combination with a casing and a revoluble decorticating-drum mounted therein, of a support fixed in said casing, a flexible decorticating-body adjustably secured to said support, a plurality of adjustable supports mounted radially to the axis of the drum and adapted to hold the flexible body in contact with the periphery of said drum, and a plurality of hollow supports mounted between the adjustable supports and between the periphery of the drum and a portion of the flexible decorticating-body.

5. In a decorticating-machine, the combination with a casing and a revoluble decorticating-drum mounted therein, of a support fixed in said casing, a flexible decorticating-body adjustably secured at one end to said support, a plurality of adjustable supports mounted radially to the axis of the drum and adapted to hold the decorticating-body in contact with the periphery of the drum, a plurality of covered hollow supports mounted between the adjustable supports parallel thereto and between the periphery of the drum and a portion of the decorticating-body, and a perforated wall between the drum and each hollow support.

JOHANN HEINRICH FRIEDRICH LOUIS HARTMANN.

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