

(No Model.)

H. DIETZ.

GRAIN SCOURING AND CLEANING MACHINE.

No. 314,439.

Patented Mar. 24, 1885.

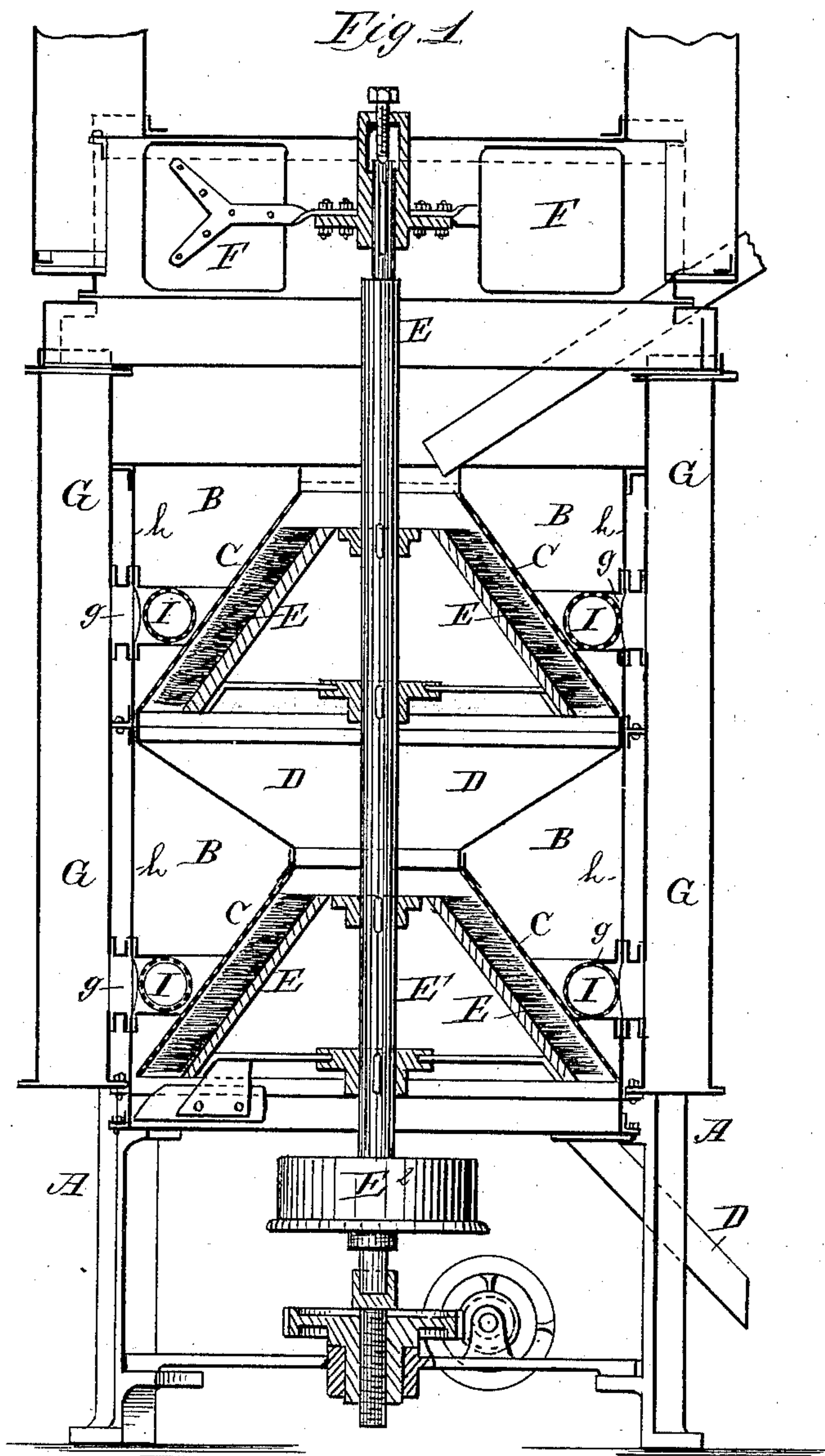


Fig. 2.



Fig. 3.



Fig. 4.

Witnesses.

W. E. Doulton,
J. M. Knell

Inventor

Hermann Dietz
per Mary Orth
his atty

UNITED STATES PATENT OFFICE.

HERMANN DIETZ, OF BERLIN, GERMANY.

GRAIN SCOURING AND CLEANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 314,439, dated March 24, 1885.

Application filed May 27, 1884. (No model.) Patented in England April 8, 1884, No. 6,090; in Italy May 23, 1884, XXXIII, 290; XVIII, 16,832; in Sweden October 17, 1884, and in Austria-Hungary November 7, 1884, No. 13,405 and No. 51,340.

To all whom it may concern:

Be it known that I, HERMANN DIETZ, a subject of the King of Prussia, residing at 182 Urbanstrasse, Berlin S., Prussia, German Empire, have invented certain new and useful Improvements in Grain Scouring and Cleaning Machines, (for which I have obtained Letters Patent in Great Britain No. 6,090, dated April 8, 1884; in Sweden, dated October 17, 1884; in Italy, Nos. 290 and 16,832, dated May 23, 1884, and in Austria-Hungary, No. 13,405 and No. 51,340, dated November 7, 1884;) 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to machines for scouring and cleaning grain and seeds, and has for its object to provide means whereby the dust and other impurities are more effectually and thoroughly eliminated from the material treated.

My improvements are more especially designed for application to that class of scouring-machines in which the material is passed over perforated surfaces, and acted upon by brushes during its passage over said surfaces, and in which the impurities are removed by air-currents drawn through the perforated cleaning-surfaces.

My invention is applicable to machines in which are employed rotary, cylindrical, or conical brushes or reciprocating brushes; and it consists, essentially, in the combination, with a scouring-brush, a perforated scouring-surface, and an exhaust-fan, of a perforated scouring-duct arranged around the perforated scouring-surface for drawing the air-currents from the scouring or cleaning surface.

The invention further consists in the combination of a series of scouring-brushes mounted on a common driving-shaft, a corresponding series of perforated scouring-surfaces, and an exhaust-fan with a series of perforated suction-ducts arranged around said scouring-sur-

faces, and ducts common to all the section-ducts for connecting the latter with the exhaust-fan, all as hereinafter fully described.

In machines of this class as heretofore constructed the dust-chambers are usually provided with exhaust-openings connected with an exhaust-fan. In such an arrangement the currents of air drawn through the cleaning-surfaces are very strong on lines in the plane of said openings, the force of the current gradually diminishing as said lines diverge from said openings, which results in a more or less incomplete cleaning of the material treated. There is also a tendency to produce eddies within the dust-chambers, causing the impurities, chaff, dust, &c., to settle within the chambers, instead of being carried out of the same; and the cleaning-surfaces are liable to become choked at points where the air-currents are not strong enough to carry away the impurities, rendering a portion of said surfaces inoperative and necessitating frequent stoppages for the purpose of cleaning the same.

The object of this invention is to obviate these difficulties by providing means whereby the air-currents drawn through the perforated cleaning-surfaces are more evenly distributed over the entire acting surface thereof.

In the accompanying drawings I have illustrated my invention in its application to a scouring or cleaning machine having superposed scouring-chambers of the form of a truncated cone, the material being subjected to the action of rotating brushes of like form.

Figure 1 is a vertical transverse section of the machine, and Figs. 2, 3, and 4 are sections of exhaust-ducts.

A indicates the main frame; B, the dust-chambers; C, the perforated scouring-cones; D, the discharge-hoppers; E, the brushes keyed to a driving-shaft, E', driven in any desired manner from a suitable prime motor by pulleys E².

F is the exhaust-fan keyed to the upper end of shaft E', and G are ducts leading from the fan-case to the dust-chambers B.

Within each dust-chamber is arranged an exhaust-duct, I, connected with ducts G by connecting-ducts g. Said ducts I are made of

perforated sheet metal, and may be cylindrical in cross-section, as shown in Fig. 1, or square or semi-cylindrical or prismatic in cross-section, as shown in Figs. 2, 3, and 4.

5 The duct is arranged in proximity to the scouring-cone C and around the same, as shown in Fig. 1, so that the air is drawn from the cone over its entire circumference, thereby inducing uniform and continuous currents of air, 10 whereby the proper function of the machine is attained.

It is desirable that the perforated suction-duct I should be located at the lower wider part of the scouring-cone, for the reason that 15 the lighter impurities tend to gather at that point. If desired, the perforated exhaust-duct may be secured to the inner faces of the walls *h* of the dust-chambers B, and this connection is greatly facilitated by employing 20 ducts of the form shown in Figs. 2, 3, and 4.

It is obvious that the perforated ducts may be applied to other forms of brushes than the conical brushes shown; and this is especially the case in machines in which cylindrical 25 brushes are used, and that more than one duct may be employed, such ducts being superposed around the brushes, forming in themselves an inclosing-case, each duct being in communication with the exhaust-fan, in which case the 30 dust-chambers may be dispensed with.

The good operation of the machine lies essentially in the arrangement of the exhaust duct or ducts I in proximity to the scouring devices, and in providing said ducts with a 35 great number of suction-orifices to induce air-

currents through the perforated scouring-cone over its entire surface.

Having now described my invention, what I claim as new is—

1. In a grain scouring and cleaning machine, 40 the combination, substantially as herein described, of a perforated scouring-surface and an exhaust-fan with a perforated suction-duct arranged in proximity to and around the perforated scouring-surface, said parts being ar- 45 ranged for operation as described.

2. In a grain scouring or cleaning machine, the combination, substantially as herein described, of a series of scouring-brushes mounted on a common driving-shaft, a corresponding series of perforated scouring-surfaces, with 50 a series of perforated suction-ducts arranged around said scouring-surfaces, an exhaust-fan driven from the brush-shaft, and connecting-ducts common to all the suction-ducts for connecting the latter with the fan, for the purposes specified. 55

3. The combination, substantially as herein described, with the brushes E, the perforated scouring-surfaces C, and the exhaust-fan, of 60 the perforated suction-ducts I, connected with said fan, said parts being arranged for operation as set forth, for the purposes specified.

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

HERMANN DIETZ.

Witnesses:

A. DEMELIUS,
B. ROE.