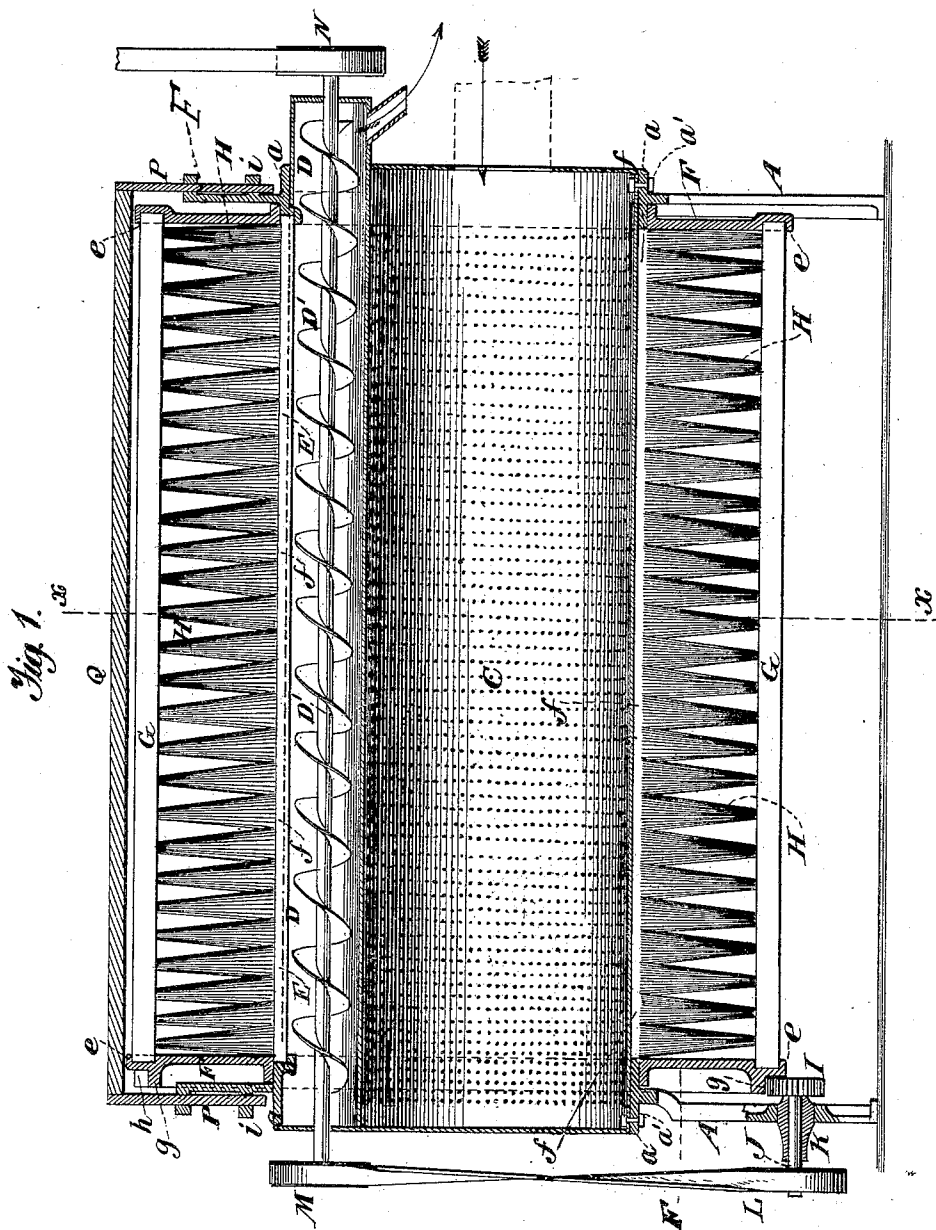


A. GESSL.
DUST COLLECTOR.

No. 399,984.

Patented Mar. 19, 1889.



Witnesses.
A. Ruppert.
J. W. Henderson.

Inventor.
Anton Gessl,
 by *W. G. Henderson*
Attorney

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Fig. 3.

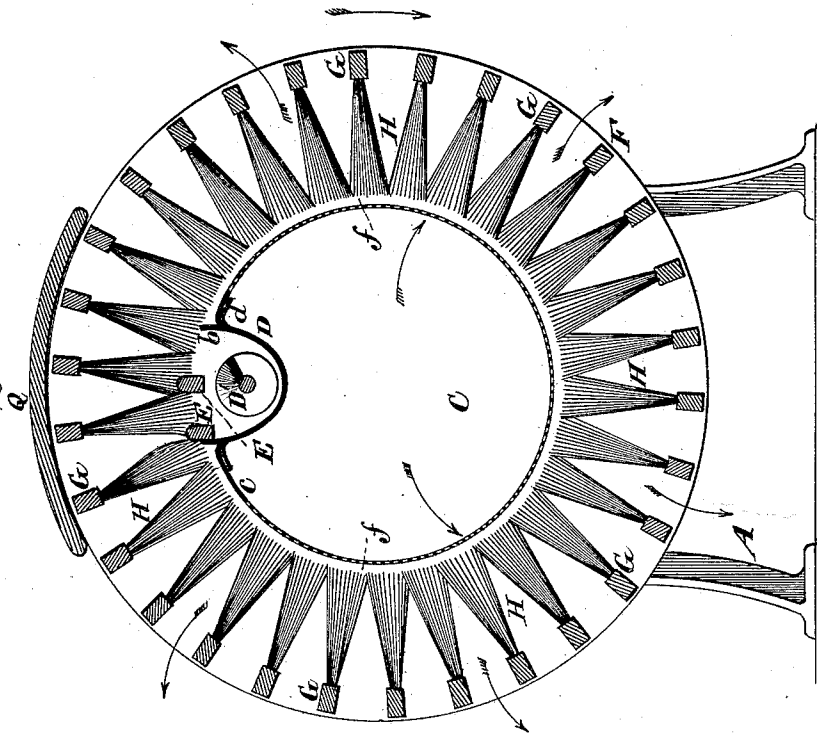
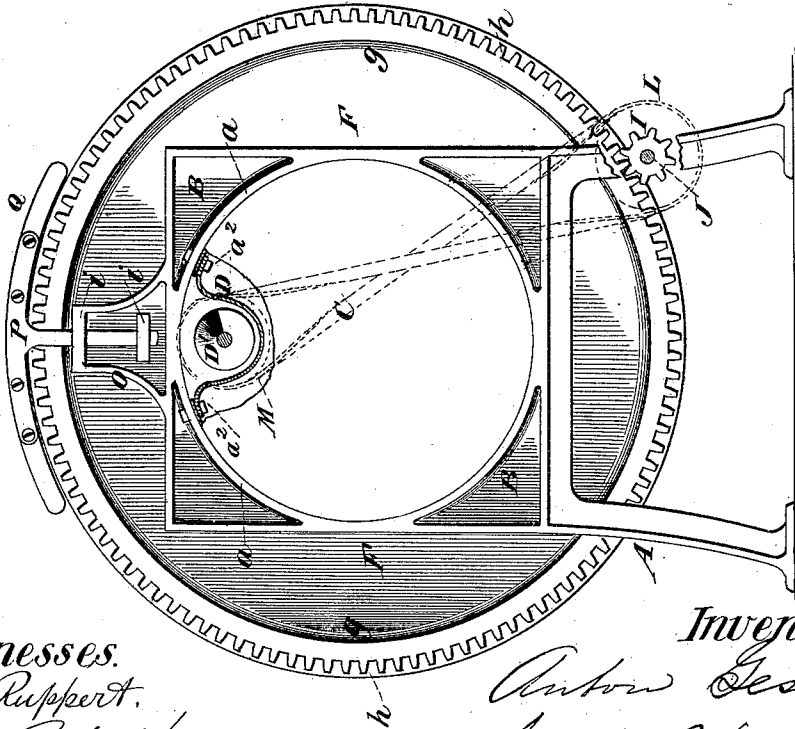


Fig. 2.



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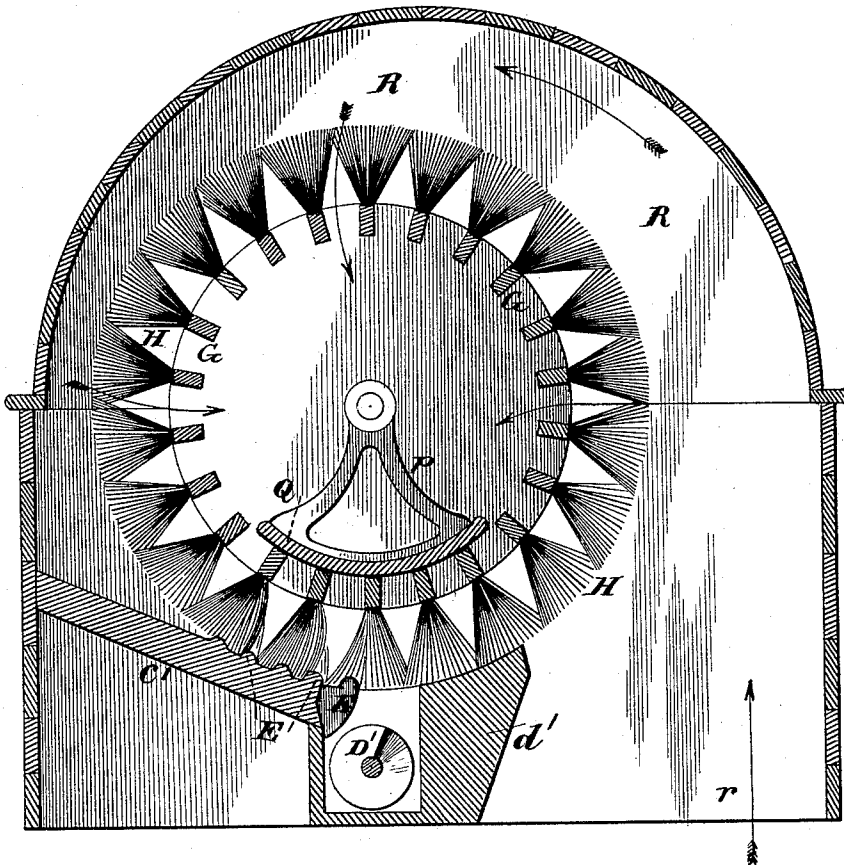
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Fig. 4.



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UNITED STATES PATENT OFFICE.

ANTON GESSL, OF BUFFALO, NEW YORK, ASSIGNOR TO FAUSTIN PRINZ,
OF MILWAUKEE, WISCONSIN.

DUST-COLLECTOR.

SPECIFICATION forming part of Letters Patent No. 399,984, dated March 19, 1889.

Application filed August 11, 1885. Renewed April 29, 1886. Again renewed June 6, 1887. Serial No. 240,442. (No model.)

To all whom it may concern:

Be it known that I, ANTON GESSL, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Dust - Collectors; 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.

My invention relates to dust-collectors for flour-mills, and has for its object to provide for the thorough straining of the dust-laden air, to simplify and cheapen the cost of collectors for that purpose, and to increase their efficiency and durability; and to those ends the invention consists in the construction and in the combinations of parts hereinafter particularly described, and afterward specifically pointed out in the claims.

Figure 1 of the drawings is a longitudinal vertical section of the collector. Fig. 2 is an end view thereof; Fig. 3, a cross-section on the line *xx* of Fig. 1. Fig. 4 is a cross-section of a modified form of collector.

In the accompanying drawings, the letter A designates legs or standards supporting the end frames, B, which are formed with flanges *a*, which form central sockets in which the ends of a perforated or reticulated cylinder or air-conduit, C, fit, so that the cylinder is supported thereby, the cylinder being held to its place by bolts *a'*, passed through the outside flanges and cylinder, or otherwise. The top of the cylinder from end to end is cut away, so that there may be fitted therein an imperforate trough, D, the top thereof being open and its sides extending up above the periphery of the cylinder, so as to form flanges or shields *b*, designed to prevent the air-blast from passing into the trough or across its top, and the said cylinder C adjacent to the trough is preferably made imperforate, as shown at *c* and *d*, so as to prevent the air-blast from exerting a disturbing influence adjacent to the top of the sides of the trough, and preferably, although not necessarily, the imperforate portion *c* on the side from which the brushes move over the trough is made longer than the other side, so that

the air eddies or currents in the brushes will quiet or settle and not be carried over the top of the trough by the momentum imparted by the rotation of the brush-cylinder. Within the trough there is a conveyer, D', and above the trough one or more projecting bars or clearers, E, to agitate the brushes as they pass over the trough, and thus cause them to give up or drop the particles of flour or dust that may be adhering thereto.

The trough may be supported by resting in the end frames and be secured thereto by bolts *a*², or otherwise, and the longitudinal bars E may likewise be supported by entering the sockets in the end frames, as shown in Fig. 1, or in any other suitable manner.

At each end of the cylinder there is supported by the inside flanges, *a*, of the end frames, B, rings or annular plates F, which fit on the flanges so as to turn thereon. These rings or plates may be held together by tie-rods applied in any well-known way familiar to the mechanic or millwright, and therefore need not be illustrated, and near their peripheries, on their inside faces, are formed with grooves or sockets *e*, to receive and hold the ends of the bars G, which have projecting inwardly therefrom brushes H, formed of bristles, fibers, steel wire, or other suitable brush-forming substances, and secured to the bars in any of the known ways of securing bristles to brush-stocks. Any desired number of these bars may be used, and their bristles are preferably so arranged as to bring the bristles of one bar into meeting contact with those of the next adjoining bar, so as to form at their lower ends or ends next to the reticulated cylinder a continuous unbroken surface; but my invention comprises the brushes even if there be spaces left between the bristles of any two or more bars. The brushes terminate within an inch (more or less) of the reticulated or perforated cylinder, so as to leave a space, *f*, large enough between them and the cylinder for the free passage of the air-blast and the dust which it carries out of the cylinder. One end ring or plate of the brush-cylinder is formed on its outer face, preferably near its periphery, with an annular flange, *g*, on which is formed a series of cogs or teeth, *h*, with

which mesh a gear, I, carried by a shaft or spindle, J, journaled in a hub or box, K, supported by one of the legs A. The outer end of the shaft or spindle J has a band-pulley, L, on it, the band of which extends to a pulley, M, on the shaft of the conveyer D', the said shaft at the other end carrying another pulley, N, to which motion is imparted from some suitable source of power. By such means the brush-cylinder is revolved around the perforated or reticulated cylinder.

From the upper end of each end frame, B, there extends upwardly a bracket, O, having on its outer face ears or lugs *z*, through which passes the shank of an arm, P, of a shut-off plate, Q, resting over the brushes above the trough D. These arms may fit snugly in the ears of the bracket, so as to be held thereby.

In operation the brushes are revolved, as stated, and the dust-laden air, directed into the perforated or reticulated cylinder at one end, expands within the same, whence it passes through the meshes of the cylinder to and through the brushes outside thereof, by which it is thoroughly strained or freed from the dust, which lodges in the brushes. As the stiff brushes in their revolution are brought above the conveyer-trough, they strike against the bars E and snap over the same, so that the dust is shaken or knocked or dislodged therefrom, and, as the air is shut off from that portion, the dust falls into the trough, from whence it is discharged by the conveyer. The brushes present prolonged interstices or meshes for the air to pass through, so that, as a consequence, the air is more thoroughly deprived of its dust than is the case where the interstices or meshes are shorter. I therefore desire it to be understood that I regard as my invention a screen or dust-collecting surface or medium for dust-collectors composed of brushes, broadly considered, whether the air passes through the brushes or only along the surface thereof.

I have not shown either a knocker for the brushes nor the collector inclosed within a casing, because neither is considered necessary to the successful working of the collector; but such elements are well known, and may be used, if desired, without departing from my invention.

Changes may be made in the construction of the parts and their arrangement and still embrace features of my invention. For instance, as illustrated in Fig. 4, the brushes H may be on the outside of the bars G and the shut-off Q located inside of the circle described by the bars, so that the dust-laden air will pass from the outside inwardly through the brushes instead of from the inside outwardly. In this form the trough D and its conveyer D' will be located at the lower part of the brush-reel and the inclined plate *c'* will be provided with the bars or agitators E, while at the other side of the conveyer-trough is the block or partition *d'* to co-operate with the

other parts to more or less exclude the air-blast from the conveyer portion of the reel. The air under this form enters the casing R at the conduit or point *r*, and after entering the interior of the reel from the outside passes out from the same at the end, instead of entering the end and passing out at the sides, as in the other form described. The feature of the screen or dust-collecting surface composed of the brushes or bristles is retained however.

In brief, the feature of the screen or dust-collecting surface composed of brushes or bristles may be used in any of the ordinary and well-known forms of dust-collectors, the brushes or bristles taking the place of the cloth or other reticulated material commonly used in these dust-collectors, and so may either the screen or dust-collecting surface or the shut-off and dust-collecting device be made to move while the other of the two elements is made stationary, as in other well-known collectors.

The perforated cylinder C can be omitted without departing from the spirit of my invention, because when omitted the air will enter at the end and travel lengthwise of the screen or dust-collecting surface, the central opening therein constituting the conduit, and then pass out through the sides; but it is preferred to use the cylinder, as it prevents the air-blast as it enters from forcing the bristles sidewise and more evenly distributes the air.

The teeth *h*, pinion I, and shaft J are shown at only one end of the screen or dust-collecting surface; but it is obvious that they can be duplicated at the other end, if desired, and the shaft J extended directly from one end to the other, as is apparent to the millwright.

Having described my invention and set forth its merits, what I claim is—

1. In a dust-collector, a dust-collecting medium composed of brushes for separating the dust from the air, substantially as described.

2. In a dust-collector, the combination of a brush dust-collecting medium and an air-conduit for directing the air to the said medium, substantially as described.

3. In a dust-collector, the combination of a brush dust-collecting medium, an air-conduit for directing air thereto, and a trough to receive dust deposited from the brushes, substantially as described.

4. In a dust-collector, the combination of a brush dust-collecting medium, a conduit for directing air thereto, a clearer for the brushes, and a trough to receive the dust deposited from the brushes, substantially as described.

5. In a dust-collector, the combination of a brush dust-collecting medium, an air-conduit for directing air thereto, a clearer for the brushes, a trough to receive dust deposited from the brushes, and a shut-off opposite to the trough, substantially as described.

6. In a dust-collector, the combination of a brush dust-collecting medium, an air-conduit for directing air thereto, a trough to receive

dust deposited from the brushes, and a shut-off opposite to the trough, substantially as described.

7. In a dust-collector, the combination of a brush dust-collecting medium, a conduit for directing air to the dust-collecting surface, a portion of said conduit being perforate and a portion imperforate, and a trough adjacent to the imperforate portion of the conduit to receive dust deposited from the collecting medium, substantially as described.

8. In a dust-collector, the combination, with a dust-collecting medium, of a conduit for directing air thereto, a portion of said conduit being perforate and a portion imperforate, and a trough at the imperforate portion of the conduit to receive dust from the collecting medium, substantially as described.

9. In a dust-collector, the combination of a conduit for dust-laden air, a portion thereof being perforate and a portion imperforate, and a trough at the imperforate portion of the conduit having an extension of its sides above the wall of the conduit, substantially as described.

10. In a dust-collector, the combination of a rotating brush-cylinder, a perforated or reticulated conduit within said cylinder for directing air thereto, and a trough to receive dust deposited from the brushes of the cylinder, substantially as described.

11. In a dust-collector, the combination of a rotating brush-cylinder and a perforated or reticulated conduit within said cylinder to direct air thereto, the brushes terminating a distance from said conduit to leave a space between the brushes and conduit, substantially as described.

12. In a dust-collector, the combination of the end frames, the revolving brush-cylinder supported by said frames and having a gear at one end, a perforated or reticulated conduit within said cylinder, a trough to said conduit, a shaft carrying a conveyer in the trough, a gear meshing with the gear of the cylinder, and pulleys and connecting-band for revolving the conveyer and cylinder, substantially as described.

13. In a dust-collector, the combination of the end frames, the revolving brush-cylinder supported thereby, the perforated or reticulated conduit within the cylinder, the conveyer-trough to the conduit, the shut-off above the trough, and the arms connected with the end frames to support the shut-off, substantially as described.

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

ANTON GESSL.

Witnesses:

FRANK F. WILLIAMS,
FAUSTIN PRINZ.