

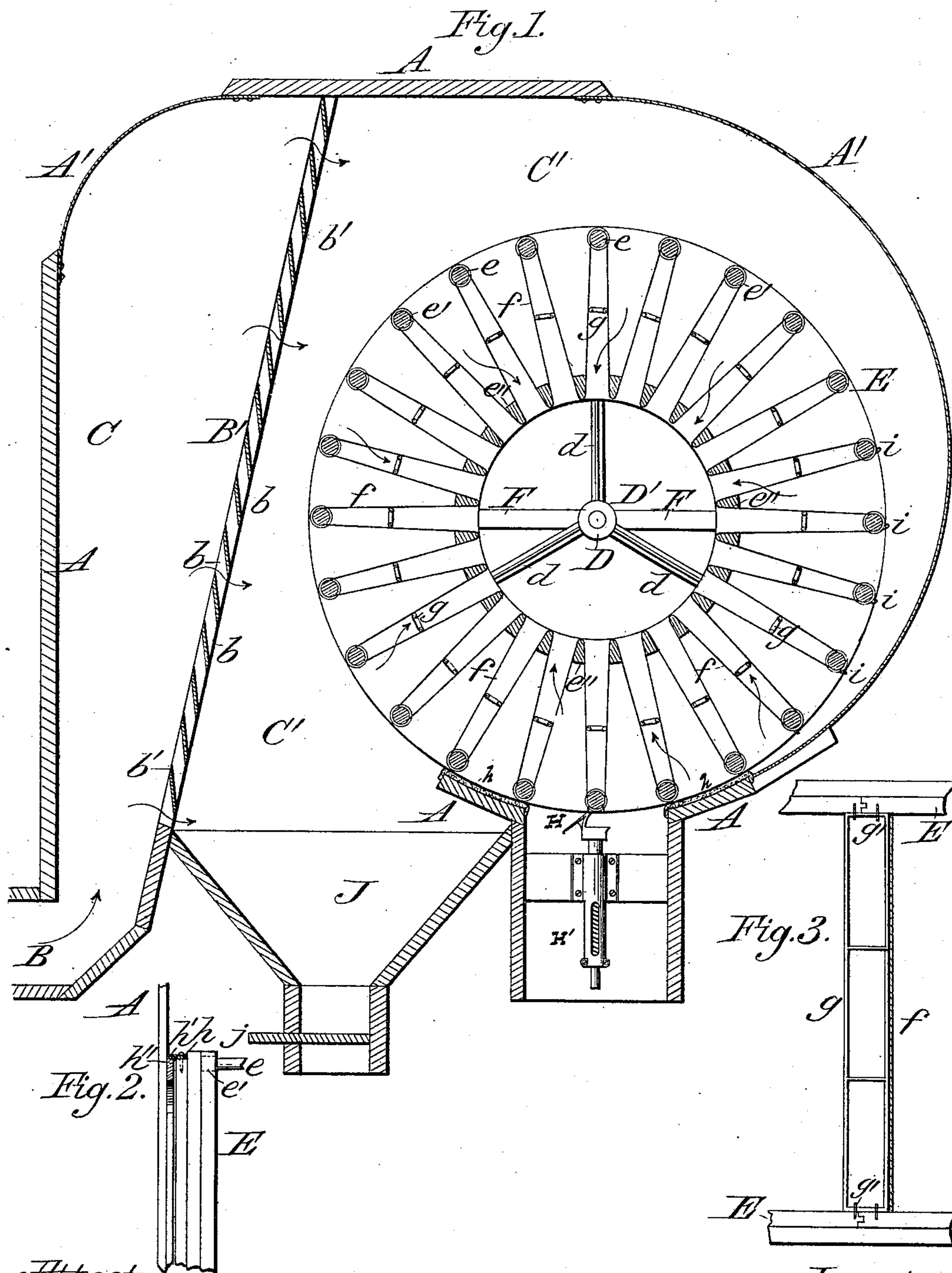
(No Model.)

A. H. KIRK.

# DUST COLLECTOR FOR FLOUR MILLS.

No. 251,120.

Patented Dec. 20, 1881.



*Attest:*

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# UNITED STATES PATENT OFFICE.

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## DUST-COLLECTOR FOR FLOUR-MILLS.

SPECIFICATION forming part of Letters Patent No. 251,120, dated December 20, 1881.

Application filed August 11, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, ALVA H. KIRK, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Dust-Collectors for Flour-Mills; 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.

The object of this invention is to cheapen the machines heretofore in use for the purpose designed, to have the machine occupy less space, and to simplify the construction; and to this end it consists in the construction and combination of parts that make up the machine, as will be fully hereinafter described.

In the drawings, Figure 1 represents a transverse sectional view of the machine, and Figs. 2 and 3 details of construction of parts.

A and A' represent the casing within which the operating parts are contained.

B is an induction-trunk, through which the dust-laden air is forced or drawn by any known means into the dust-chamber and against the dust-cloth.

B' is a partition extending upward, and may be a continuation of the under side of the induction-trunk B to the under side of the casing at the top of the machine, and it may also be perpendicular or inclined, as desired; but by preference it is inclined. This partition B' has downwardly-inclined slats b', forming openings b between them, and divides the inside of the case A into two chambers, C and C'.

D is a horizontal revolving shaft, placed longitudinally in the machine, and has hubs D' fast thereon.

d d are radial arms extending from the hubs to the heads E, so that the heads will revolve with shaft D.

F is one of the bridge-trees that support shaft D in proper bearings thereon.

e' e' are india-rubber or other elastic tubes or steps inserted in the heads E, and the outer ends of the ribs e are inserted in the elastic steps, so as to give elasticity to the ribs or to remove rigidity therefrom.

e' e' are the inside or center ribs, firmly secured in the heads E at their ends.

f is the dust-catching cloth passing around the inner ribs, e', and thence around the outer ribs, e, as seen in Fig. 1.

g g are wire frames fixed between the folds of the dust-catching cloth and on the opposite side from that on which the dust impinges, and are made fast in place at their ends to the inside of heads E by the staples g' g', as seen in Fig. 3. These wire frames keep the cloth f from stretching or bagging by the force of the air against it, for by keeping the cloth in a taut and straight position the air will go through it with more freedom. In order to secure a tight and easy-working joint between the revolving head and the casing, a rabbet, h, is made in the periphery of each head E, and an india-rubber band, h', is secured therein, which projects over and bears slightly upon a circular projecting rib, h'', that is fast on the inside of case A, as seen in Fig. 2.

i i are projecting strips of rubber or other yielding material on each rib e, to bear against the elastic cushions or pads h, located on each side of the jarring-hammer H, thereby making an air and dust cut-off on each side of the still-air chamber H'.

The cylinder containing the reticulated dust-catching cloth is revolved intermittently by any suitable known mechanism, and is so constructed that it will cease its revolution as each rib e passes the yielding jarring-hammer, so that the dust jarred off by the blow of the spring-hammer will fall undisturbed into the still or dead air chamber below, when the revolution will again commence, the same as described in another application heretofore filed by me in the United States Patent Office, and upon which the invention herein described is an improvement.

The partition B', having the inclined slats b' and openings b between the slats, is so constructed as to prevent the dust-laden air from going direct from trunk B to the dust-catching cloth f, for by this construction the dust-laden air is distributed over a greater space and diverted from a direct course, and, further, as the air and dust pass through the openings b, considerable of the dust—such as the heaviest—will fall into hopper J, thence onto the slide or valve j, when it can be removed at pleasure.

By this construction and arrangement less dust is impinged against the cloth *f*. Hence a less surface of cloth will answer to separate the same amount of dust from the air.

5 The mechanical devices for revolving the dust-catching cloth intermittingly and jarring off the dust from the cloth while the dust-catching cloth is still or not moving may be the same as described in another application filed by me, and so may the still or dead air chamber that  
10 receives the fallen dust be the same as that therein described.

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

1. The combination of the ribs *e* and elastic steps *e'* with the revolving heads *E*, as and for the purposes described.

20 2. The partition *B'*, having inclined openings *b*, in combination with a revolving dust-catching and dust-saving device and a forced-air-current trunk through which the dust-laden air is forced into the machine, substantially as described.

3. The dust-hopper *J*, in combination with the partition *B'*, having inclined openings *b*, and a revolving dust-catching device, substantially as described. 25

4. The wire-frame supports *g*, in combination with the heads *E E* and the dust-catching cloth *f*, as and for the purposes described. 30

5. A dust-catching and a dust-saving machine, composed of an air-tight case, a dust-laden air-trunk through which the dust-laden air is forced, an interposed partition having inclined openings therein, a cylinder adapted to have an intermittent rotary motion, yielding  
35 outer ribs, and a reticulated dust-catching cloth thereon, as and for the purposes described.

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

ALVA H. KIRK.

Witnesses:

C. E. VANDERBERGH,  
GEO. H. HAMILTON.