(No Model.)

W. F. BOEHNING.

DUST COLLECTOR.

No. 408,285. Patented Aug. 6, 1889.

Fig. 1

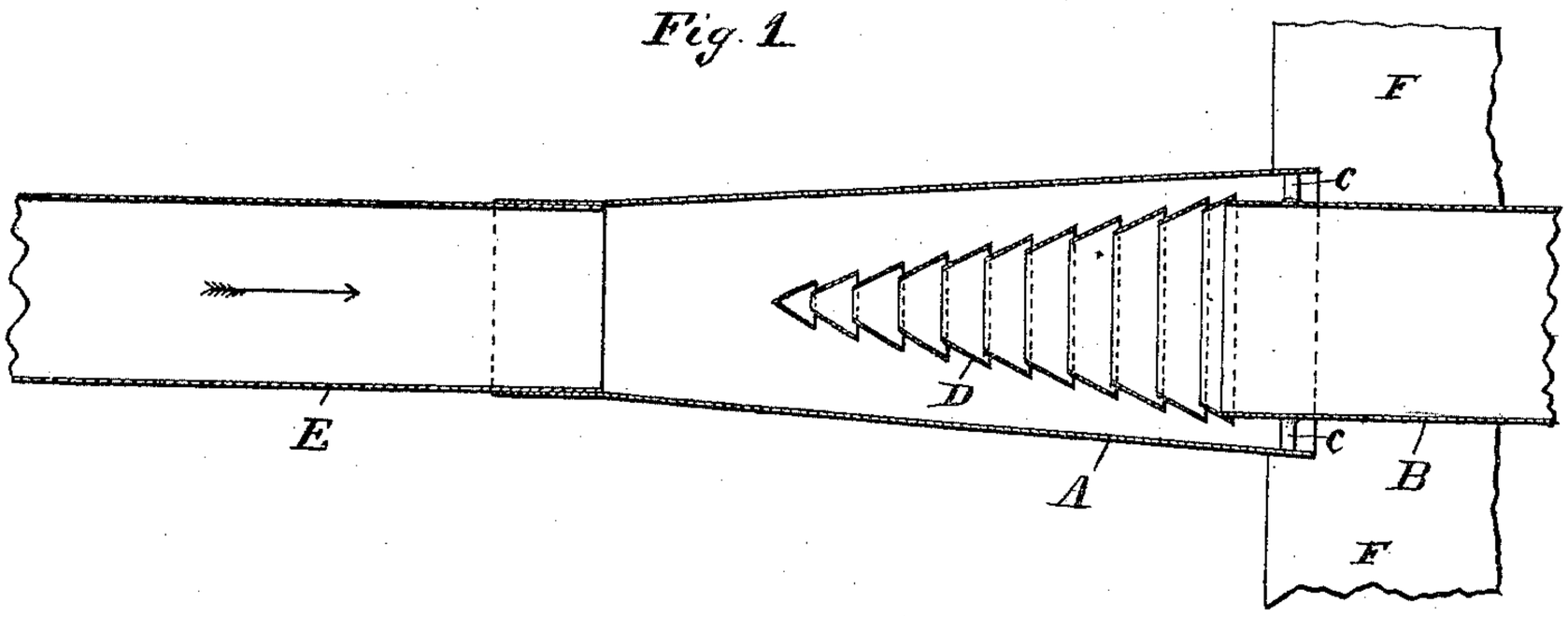
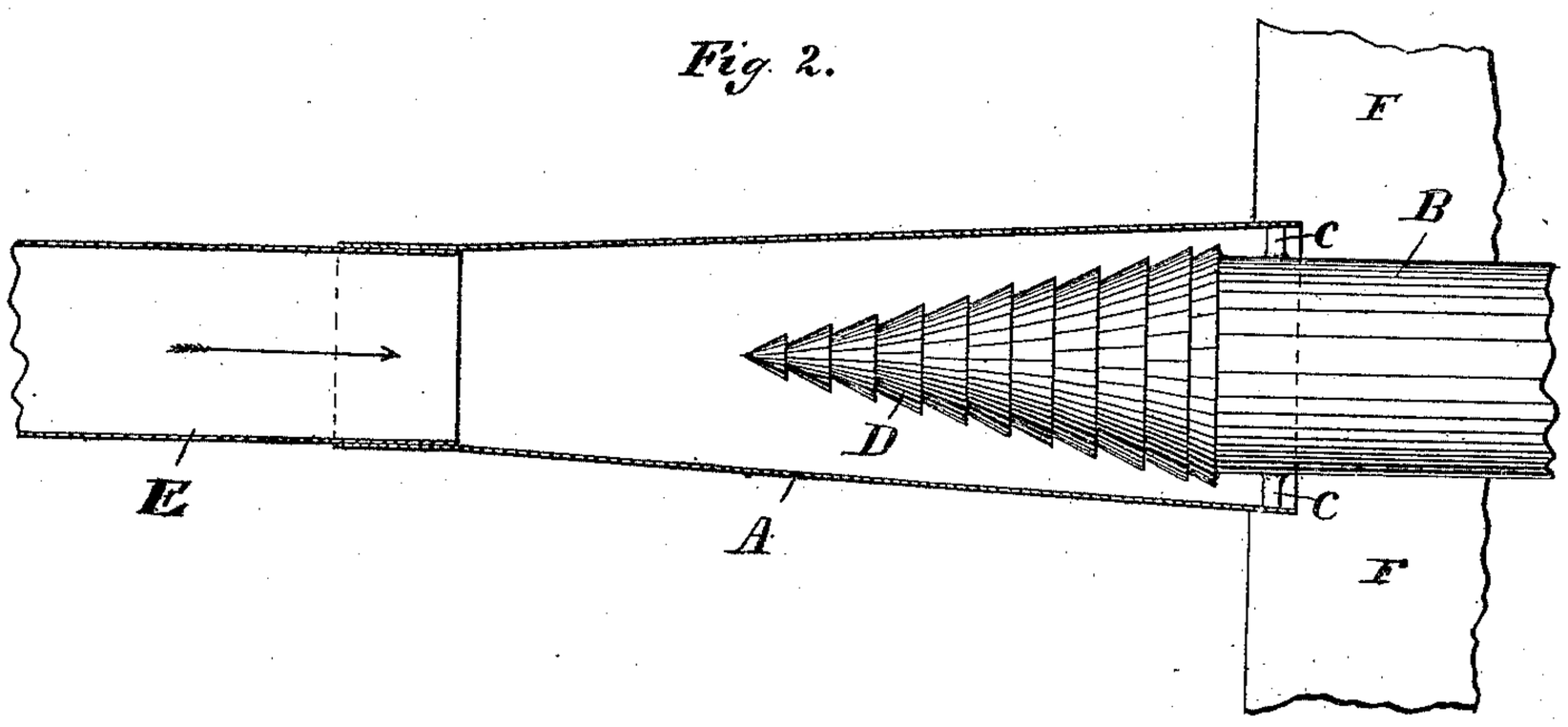


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM F. BOEHNING, OF MINNEAPOLIS, MINNESOTA.

DUST-COLLECTOR.

SPECIFICATION forming part of Letters Patent No. 408,285, dated August 6, 1889.

Application filed March 19, 1888. Serial No. 267,688. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. BOEHNING, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Dust-Collectors, of which the following is a specification.

My invention relates to an improved dust catcher or collector, designed to be used in connection with wood-working or other machinery for the purpose of collecting shavings and other material; and the invention consists, generally, in the construction and combination hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a longitudinal vertical section of a dust-collector constructed in accordance with my invention. Fig. 2 is a similar view, the outer tube only being shown in section.

In the drawings, A represents a suitable tube, which may be formed of sheet metal or other suitable material, and is preferably made flaring, or larger at one end than at the other.

B represents another tube, which is preferably arranged so as to project for a short distance into the larger end of the tube A. The tube B is of smaller diameter than this end of the tube A, so that an annular space is left within the tube A, and between its wall and the tube B. The tube B may be supported in this position by any suitable means. I have shown here suitable standards C, arranged between the two tubes for the purpose of supporting the tube B.

Arranged within the tube A, and covering the end of the tube B, is a cone formed of a series of hollow sections or frustums D, each of which has its larger end overlapping and surrounding the smaller end of the next section. A narrow annular space is thus left between each of the sections communicating with the interior of the tube B. The end section is brought to a point and forms the apex of the cone. Any suitable means may be used for supporting these sections and securing them together.

The operation of the device is as follows: A current of air, carrying with it shavings, dust, or other light material which it is desired to collect, is forced into the smaller end of the tube A by any suitable means. The shavings, dust, &c., pass out through the annular space between the two tubes, while the air from which the dust and shavings have been freed escapes through the annular spaces between the conical sections and passes into the interior of the tube B, from which it may be permitted to pass out at any desired point. The end of the outer tube may connect with a suitable dead-air chamber or other receptacle F, into which the shavings or other material will be forced, while the tube B may communicate with the open air at any desired point. A tube E may communicate with the smaller end of the tube A, and through it the current of air by which the shavings will be carried along may be directed into the tube A. The spaces between the conical sections are sufficient to permit a free escape of the air into the interior of the tube B. While I prefer to form the tube A larger at one end than at the other, it may, if preferred, be of the same diameter throughout.

While this machine is particularly adapted for separating sawdust and shavings collected from wood-working machinery, it may be used for catching other light material—such as chaff or bran—in which case it will be suitably connected with elevator, flour-mill, or other machinery.

I claim as my invention—

1. In a dust-collector, the combination, with the air-tube A, of the air-tube B, having a smaller diameter than the tube A, projecting into the tube A from the direction opposite to the current of air and arranged with an annular space between the tubes, a series of hollow conical sections secured to the end of the tube B, having their smaller ends toward the interior of the tube A and their larger ends inclosing and overlapping each the one next in the series, the annular spaces between them communicating with the interior of said tube B, and a suitable chamber or dead-air space communicating with said tube A, adapted to receive the dust and other impurities deposited therein from said tube, substantially as described.

2. The combination, with the flaring air-tube A, of the air-tube B, projecting into the larger end of the tube A, with an open space between said tubes, and a series of hollow conical sections arranged within the tube A, with open spaces between them communicating with the interior of said tube B, said sections covering the end of the tube B, the smaller end of one being inclosed and overlapped by the larger end of the next of the series, by means of which the dust and other impurities are carried out of said tube A through the space between the tubes, while the air passes between the conical sections and outward through the tube B, substantially as described.

In testimony whereof I have hereunto set my hand this 14th day of March, 1888.

WILLIAM F. BOEHNING.

In presence of—

A. C. PAUL,

A. M. GASKELL.