

C. SIGMUND.
Middlings-Purifiers.

No. 146,485.

Patented Jan. 13, 1874.

Fig. 1.

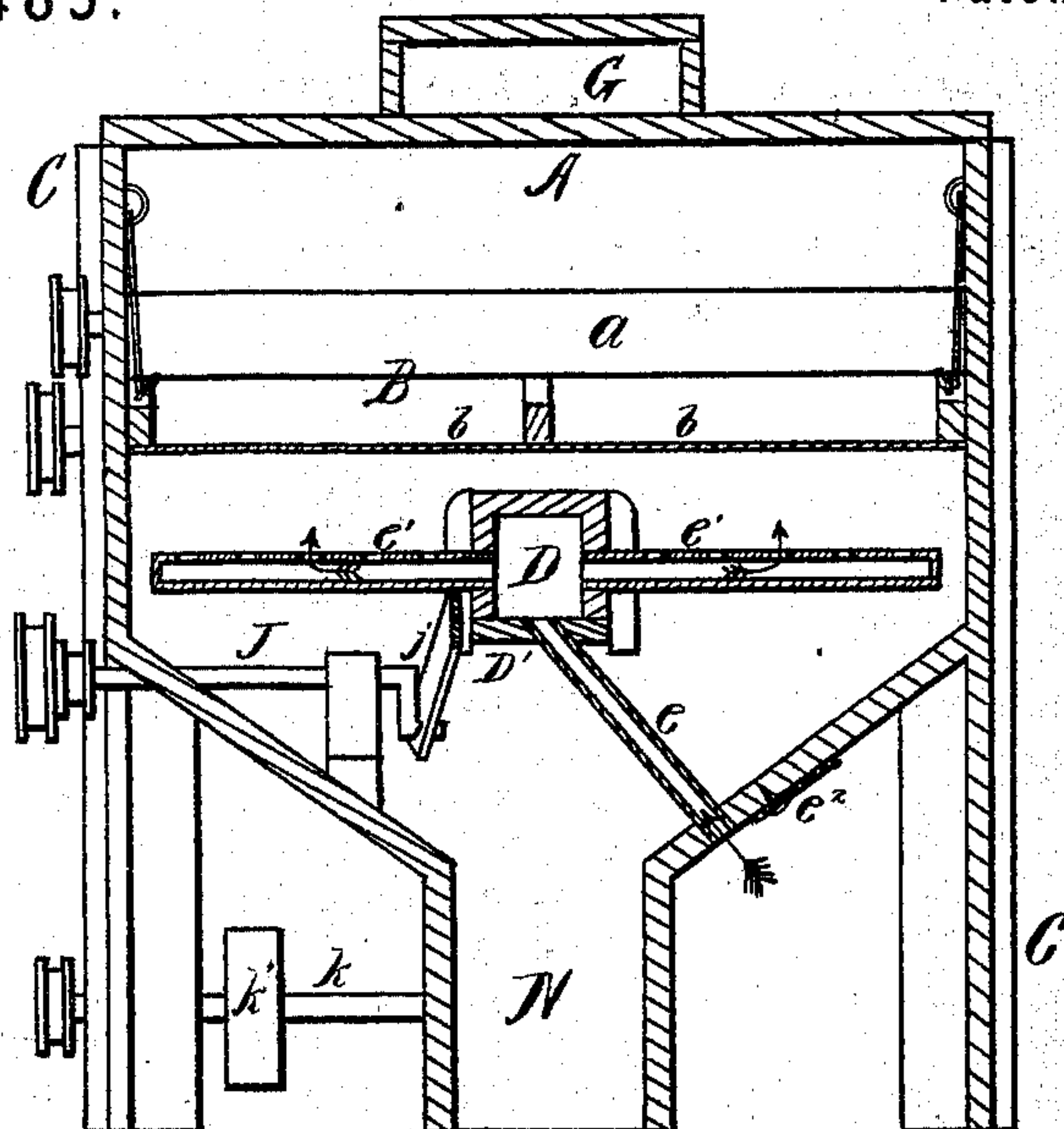
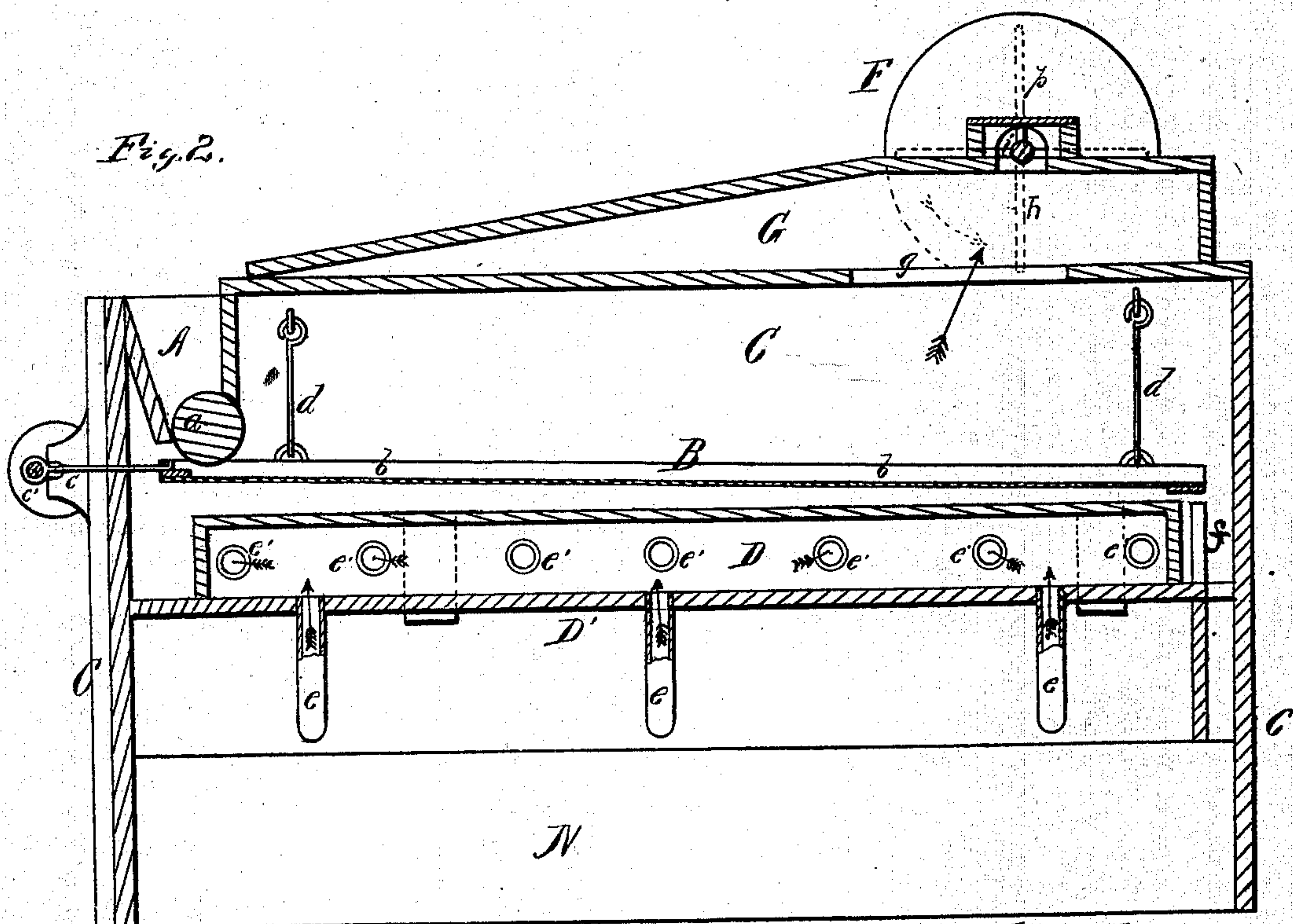


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

CHRISTIAN SIGMUND, OF GEORGETOWN, DISTRICT OF COLUMBIA.

IMPROVEMENT IN MIDLINGS-PURIFIERS.

Specification forming part of Letters Patent No. **146,485**, dated January 13, 1874; application filed August 13, 1873.

To all whom it may concern:

Be it known that I, CHRISTIAN SIGMUND, of Georgetown, in the county of Washington and District of Columbia, have invented a new and valuable Improvement in Middlings-Purifiers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a cross-section of my middlings-purifiers. Fig. 2 is a vertical longitudinal sectional view of the same.

The object of this invention is to separate middlings and light impurities from flour during the process of passing the same over a shaken screen or bolting-cloth, by the employment of a suction-fan or its equivalent, which is arranged above the screen or cloth, in combination with a reciprocating air trunk or chest carrying a series of perforated pipes, which are arranged beneath the said screen, and which receive air from without the chest of the separator, and direct it in jets through the screen or cloth, so as to operate, in conjunction with the suction or exhausting fan, upon the light substances mixed with the flour, and carry them off into a receptacle suitably adapted to the purpose, as will be hereinafter explained.

The following description of my invention will enable others skilled in the art to understand it.

In the accompanying drawings, C represents the chest of separator, the bottom of which is composed of two inclined boards, which are directed into a receiver, N, through which receiver the different grades of flour fall, and are collected in the usual well-known manner. A represents the hopper, at the bottom of which is a roller that receives its rotation from the main driving-shaft K through belts and pulleys. From the hopper the flour falls upon the upper end of the cloth *b*, which is applied to the screening-frame B, which frame receives a reciprocating shaking motion from an eccentric, *c'*, acting through the medium of a connecting-rod, *c*. The eccentric *c'* is on a horizontal transverse shaft, which receives rotation from the main shaft K by means of belts

and pulleys. Below the upper extremity of the screen B farthest from the hopper A is a space, *f*, through which the tailings fall, and are received below into a proper chamber. Above the screen B, and on top of the chest of the separator, is an air-box, G, with which the interior of the chest C communicates by means of an opening, *g*. This box G extends nearly the full length of the separating-chest, and is partly tapered, as shown in Fig. 2. At its highest end there is an opening, *p*, which communicates with the interior of a fan-case, F, in which a fan, *h*, is applied on a shaft, *i*. The fan-case F has a discharge-opening like other exhausting or suction fan cases, and, by the revolution of this fan, air is drawn into its case from the interior of the chest C, and discharged from its opening, as indicated by the direction of the arrows in Fig. 2. Beneath the bolting-screen I arrange a series of pipes, *e'*, which are perforated on top, as shown in Fig. 1, and which communicate with a central air-trunk, D. This trunk, from which pipes *e'* extend laterally, slides upon and is closed at its bottom by a bottom piece, D', extending longitudinally from one end to the other of the chest C, as shown in Fig. 2. The trunk D slides practically air-tight upon its bottom D', and it receives its endwise motion from a crank-shaft, J, and connecting-rod *j*. The bottom piece D' is perforated vertically, and to these perforations the upper ends of air-induction pipes *e* are attached, the lower ends of which pipes penetrate the inclined boards constituting the bottom of the separator-chest, as shown in Fig. 1.

The perforated jet-pipes *e'* extend out laterally from the common air-receiving trunk D; but I do not confine myself to any definite arrangement of the jet-pipes, as they may be arranged diagonally, or in any other suitable manner. They may be cylindrical pipes, as shown, or they may be flat, and of any desired width, with several rows of perforations through their upper sides. In practice, I prefer to make the jet-pipes cylindrical, and to employ, at the entering ends of the inlet-pipes *e*, valves *e''*, for regulating the induction of air or cutting off the same.

It will be seen from the description which I have above given that I exhaust from above

the screen or bolting-cloth, and that below this screen I introduce air from without, through perforated pipes, all which communicate with a trunk, D, to which a reciprocating motion is given, independently of the motion given to the screen. By these means the light substances are separated from the flour as it is moved over the screen by the shaking motion given thereto, and such substances are drawn upward by the exhausting-fan; and forced from below upward by the inflowing jets of air, induced by said fan, into the fan-case, and are from thence expelled out of the machine.

The box G is intended to afford a free intermediate space for the light flying substances on their way into the fan-case, so that all of such substances which are drawn through the passage *g* will not return upon the screen.

I am aware that reciprocating perforated air-pipes and a suction-fan are not new, and therefore I do not claim such invention broadly; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A reciprocating air trunk or chest carrying perforated air-injecting pipes, in combination with a stationary bottom, D', substantially as and for the purposes set forth.

2. In a middlings-purifier, the combination of air-induction pipes communicating with the receiving-trunk, and perforated air-injecting pipes arranged directly underneath a vibrating screen, and a suction-fan for drawing the air through the pipes and screen, for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

CHRISTIAN SIGMUND.

Witnesses:

D. D. KANE,
GEORGE E. UPHAM.