

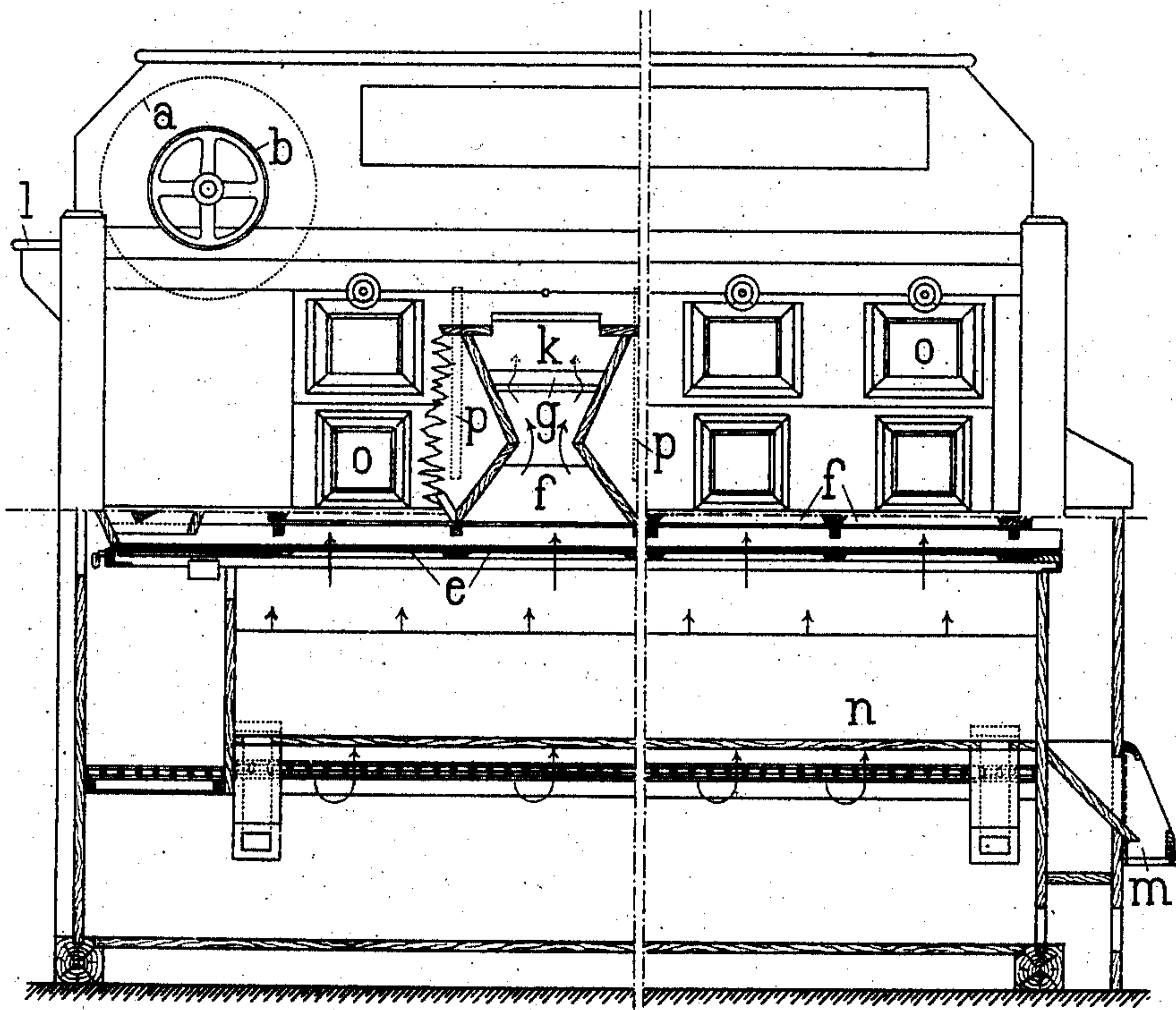
No. 846,670.

PATENTED MAR. 12, 1907.

C. JAQUET.
GRITS AND DUST PURIFIER.
APPLICATION FILED NOV. 15, 1906.

2 SHEETS—SHEET 1

Fig.1.



Witnesses

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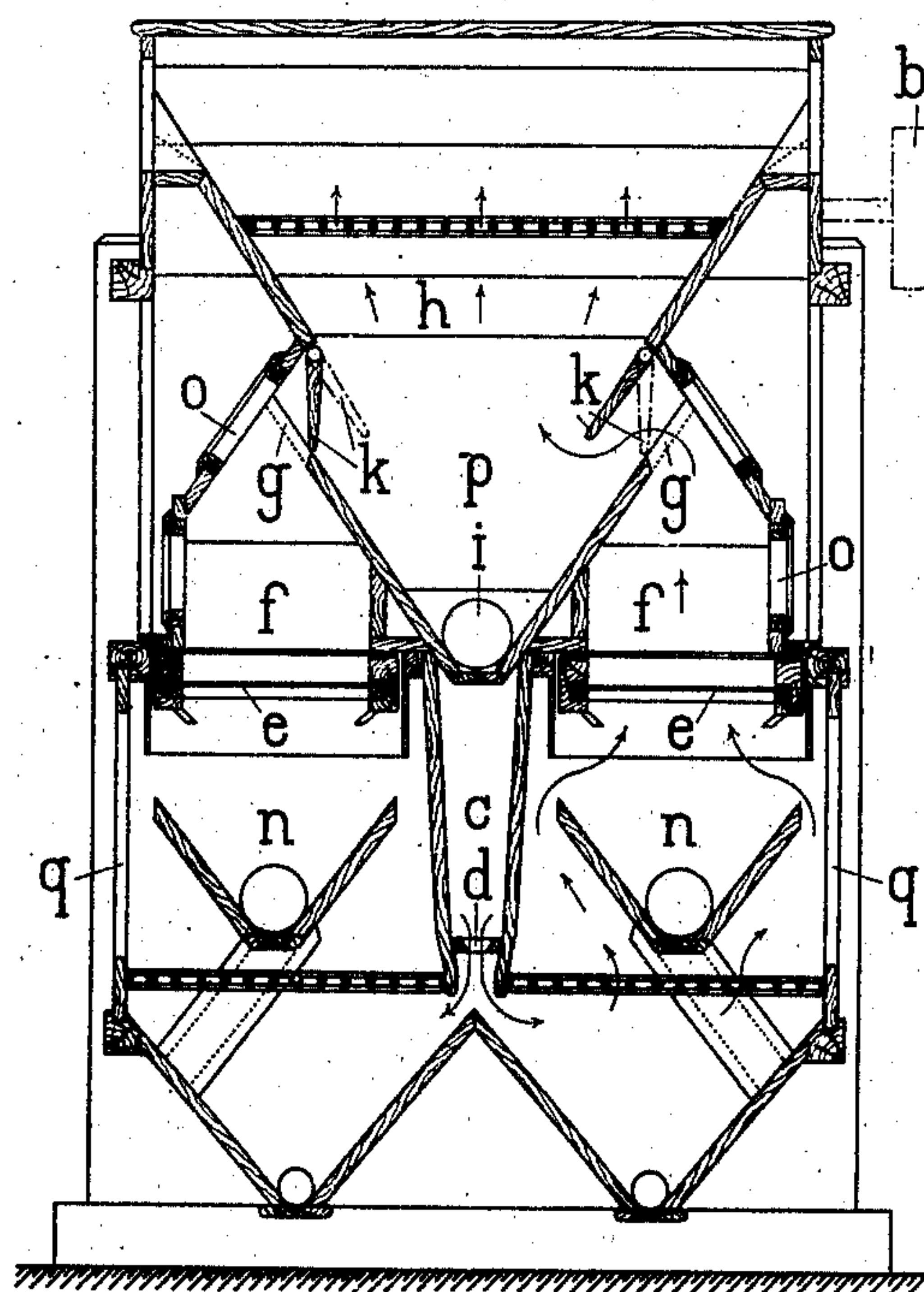
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2 SHEETS—SHEET 2.

Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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GRITS AND DUST PURIFIER.

No. 846,670.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed November 15, 1906. Serial No. 343,593.

To all whom it may concern:

Be it known that I, CHARLES JAQUET, a subject of the German Emperor, residing at Strassburg - Königshofen, Alsace, German Empire, have invented new and useful Improvements in Grits and Dust Purifiers, of which the following is a specification.

The subject of my invention is an improved purifier for grits and dust in which the air-current is so conducted that it works with the same pressure throughout the entire machine, whereby the small light particles of the material being purified are not blown about, but allowed to settle down. This is effected by means of an air-supply duct and a settling-chamber. The purpose of the duct is to receive the air-current produced by an exhauster and conduct it under uniform pressure through specially-constructed working spaces and chambers in an endless circuit. The settling-chamber serves to effect uniform deposit and enable removal of the light particles of the material being purified. The exit-aperture for the air in the said supply-duct may be of the same width throughout, or it may be wider at the rear end, whereby the advantage is attained that the air flows out at the same pressure throughout the entire length of the duct, then passing through the apparatus to perform the purifying work. The chambers and spaces are so arranged that the light particles which are separated cannot find any place to lodge and accumulate.

One form of construction of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation and part longitudinal section, the center portion being broken away to save space on the drawing. Fig. 2 is a vertical section of the machine on the line C D of Fig. 1.

The air-current in the machine travels in a closed circuit, being caused to circulate solely by means of an exhauster *a*, driven with the aid of a belt-pulley *b*. This air-current flows from the exhauster through a vertical shaft into the horizontal duct *c*, Fig. 2. From here it flows in the direction of the arrows through the longitudinally-running aperture *d* at the bottom of the duct and through the working or air chambers back to the exhauster. On its passage the blast and ex-

haust air passes through mechanically-actuated sieves *e*, on which the material to be dealt with lies. The light particles are carried up by the air-current and pass through the chambers *f* and apertures *g* into the separating-chamber *h*. The air on the passage from the sieves *e* through the chambers *f* is throttled, owing to the diminution in the cross-section of the latter. The velocity of the air-current must, therefore, on this path increase and is greatest at the outlet through the apertures *g*, whereupon it suddenly diminishes to a minimum, so that the lighter particles, which have been carried away, can settle down. The advantage of such increase in the motion of the air through the chambers *f* is that the particles lifted from the material on the sieves *e* cannot fall upon the latter again, being carried away with absolute certainty. Through the expansion of the air in the settling-chamber the light particles sink and are removed by the screw conveyor *i*.

The apertures *g* of the air-chambers *f* are provided with flaps *k*, which can be closed when necessary. The apparatus illustrated in the drawings is a twin purifier, and the left-hand compartment is shown as being out of use, the flaps *k* having been shut. It is obvious, however, that the apparatus may be constructed as a single instead of a twin machine, if desired.

In each machine there is a row of chambers *f* provided. To insure uniform purifying of the material, it is necessary to conduct the air through the various chambers at the same pressure. The air-current coming from the exhauster into the duct *c* experiences a diminution of pressure on passing through the latter. In view of this difference of pressure the longitudinally-running outlet *d* at the bottom of the duct *c* is made wider behind than at the front—that is, it has the shape of a trapezoid. The air forced through the aperture *d* rushes out at all the openings at the same pressure and owing to the mesh width of the sieves *e*, increasing in rearward direction, the air flows through the working chambers in different quantities. The purifying process will thus proceed uniformly in all the air-chambers, since the air-current flows into the latter at the same pressure.

The ground material entering through the

feed-hopper *l*, Fig. 1, descends in suitable manner upon the shaking-sieves *e* and travels through the machine in longitudinal direction. The coarse particles which do not pass through the meshes of the sieves are delivered at the chute *m*. The grits falling through the sieves drop into the troughs *n* and are likewise carried away by screw conveyers. In order that the purifying process may be observed during operation of the machine, suitably-covered windows are furnished for the chambers *f*. The method of having uniform air distribution throughout the entire machine through the ducts *c h* has the advantage that the small light particles of the material being treated are not blown or whirled about in the chambers, but can settle down. The main settling-chamber *h*, which likewise runs in the longitudinal direction of the machine, is for this purpose divided by suitably-arranged partitions *p* into a certain number of compartments, into each of which two oppositely-located apertures *g* conduct. The partitions only partly cover the cross-section of the settling-chamber *h*, whereby the light particles descending in the various compartments of this chamber can be carried away in common by means of a screw conveyer *i*, passing through the entire chamber. The deposit-receiving surfaces in the dust-cleaning machine run in such manner that the particles removed from the material being purified cannot lodge anywhere, but must travel continuously to the exit.

The machine may, if desired, be so built that instead of the air following a circulatory course it is forced out to a filter by the exhaust. The air-supply duct *c* can then be dispensed with, as the necessary air for purifying can, for instance, be sucked in at *q*, Fig. 2, through a louver or the like.

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

1. In a grit and dust purifier, in combination, an air-supply duct running longitudinally of the machine and having an aperture at the bottom, working sieve-chambers alongside of the air-duct through which the air-current ascends, troughs below the sieve-chambers on each side of the supply-duct, an upper settling-chamber communicating therewith, and means for removing descending matter from the said working and settling chambers and troughs, substantially as described.

2. In a grit and dust purifier, in combination, an air-supply duct running longitudinally of the machine and having at the bottom a longitudinal aperture, working sieve-

chambers alongside of the air-duct through which the air-current ascends, troughs below the sieve and on each side of the air-supply duct, an upper settling-chamber communicating with each, means for closing the exit from the sieve-chambers, and means for removing descending matter from the said working and settling chambers, substantially as described.

3. In a grit and dust purifier, in combination, a single air-supply duct running longitudinally of the machine and having an exit-aperture at the bottom, a plurality of working sieve-chambers alongside of the supply-duct and above its exit through which the air-current from said exit ascends, and an upper settling-chamber running longitudinally of the machine directly above the supply-duct and divided into a plurality of compartments each communicating with a corresponding sieve-chamber, and means common to all the compartments for conveying away matter settling in the same, substantially as described.

4. In a grits and dust purifier, in combination, a single air-supply duct running longitudinally of the machine and having an exit-aperture at the bottom, a plurality of working sieve-chambers alongside of the supply-duct through which the air-current from the exit of the supply-duct ascends, a plurality of upper settling-chambers above the supply-duct and communicating with the sieve-chambers, the surface of the said chambers upon which the material could lodge being inclined, and conveyers located in the bottom of and common to all of the settling-chambers, substantially as described.

5. In a grits and dust purifier, in combination, an air-supply duct running longitudinally of the machine and having an aperture at the bottom, a plurality of working sieve-chambers on each side of said duct and above the exit thereof, through which the air-current ascends, and a single settling-chamber located above the duct and between the working chambers and divided into a plurality of compartments each communicating with an oppositely-located pair of said working chambers, means for stopping the passage of air through the sieve-chambers at will, and means common to all the compartments for conveying away matter settling therein, substantially as described.

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

CHARLES JAQUET.

Witnesses:

FRANZ AUBON HUBBARD,
L. M. McDERMOTTE.