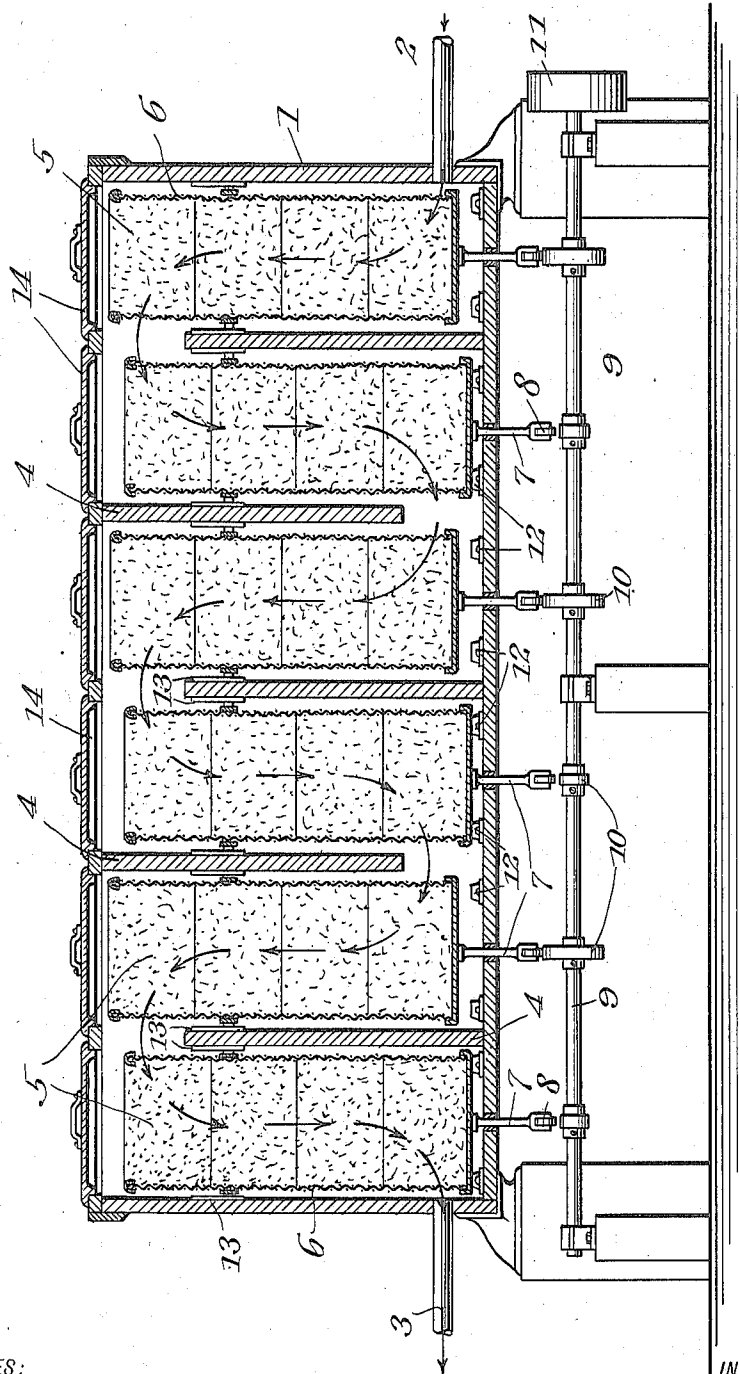


C. G. COLLINS.
 DEVICE FOR REMOVING PARTICLES FROM GASES OR FUMES.
 APPLICATION FILED DEC. 6, 1913.

1,148,501.

Patented Aug. 3, 1915.



WITNESSES:

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1,148,501.

Specification of Letters Patent.

Patented Aug. 3, 1915.

Application filed December 6, 1913. Serial No. 805,030.

To all whom it may concern:

Be it known that I, CALEB G. COLLINS, a citizen of the United States of America, residing at Woodmere, Nassau county, New York, have invented new and useful Improvements in Devices for Removing Particles from Gases or Fumes, of which the following is a specification.

This invention relates to a device for removing from gases or fumes particles which may be carried thereby or held in suspension therein.

One of the objects of the invention is to provide a device of this character in which the particles which are to be extracted from the gases or fumes containing the same are extracted in a dry state.

Other objects of the invention are to provide a device of this character which is simple in construction, which is not costly to manufacture and which is simple and reliable in operation.

Other objects will in part be obvious and in part be pointed out hereinafter.

For purposes of illustration the invention is described in connection with the removal of nascent sulfur from fumes or gases containing the same, but it is of course understood that the invention is applicable to other gases or fumes carrying solid particles.

The accompanying drawing shows a vertical sectional view of an embodiment of the collecting chamber.

Referring to the drawing, 1 indicates a casing or the like provided with an inlet 2 and an outlet 3 for the gases or fumes from which the sulfur is to be removed. Within the casing a plurality of baffle plates 4 are arranged in staggered relation, as shown, whereby the fumes or gases in passing through the casing 1 are compelled to travel in a sinuous path as indicated by the arrows. The baffle plates 4, it will be seen, divide the casing into a plurality of compartments in each of which there is placed a material 5 of such a character that the gases or fumes may pass therethrough, but any particles carried by, or held in suspension by the gases or fumes, will be deposited thereon.

While it has been found that excelsior or asbestos fiber will answer the purpose and give beneficial results, it is of course understood that any other similar substance which

will accomplish the same result may be used without in any way departing from the spirit of the invention.

In order to more readily collect the sulfur or the like which has been deposited in the material 5 means are provided for agitating or jarring the material, whereby the deposited substance will be shaken out and will drop to the bottom of the casing 1 from which it may be removed in any suitable manner.

In the embodiment shown in the drawing each compartment is provided with a foraminous receptacle 6 within which the material 5 is placed. To the bottom of each receptacle is attached a rod 7 which passes through the bottom of the casing 1 and to the lower end of which a friction roller 8 is secured. Extending beneath the casing 1 is a shaft 9 provided with cams 10 adapted to engage the friction rollers 8. This shaft may be rotated in any suitable manner, as for example by means of a belt (not shown) engaging the pulley 11. Each of the cams is so shaped that as the shaft rotates the cam will cause the receptacle 6 to alternately rise and fall, the downward motion of the receptacle being preferably due to gravity. The cams are furthermore so shaped that the downward motion of the receptacle will be abrupt or sudden, whereby the bottom of the receptacle comes in contact with stops 12 or the like, whereby the material within the receptacle will be subjected to a jolt which will cause the deposited substance contained within the material to be shaken out therefrom and to drop by gravity to the bottom of the casing 1.

As indicated in the drawing the cams are preferably so positioned as to act successively on alternate receptacles 6, whereby as one receptacle rises the adjacent receptacles will be falling. In order to guide the movement of the receptacles guides 13 are provided which are secured to the baffle plates 4. The top of the casing 1 is provided with openings registering with the receptacles, which openings are normally closed by suitable cover plates 14.

The operation of the device which should be obvious from the above description is as follows: The fumes or gases containing the sulfur or other particles which it is desired to remove therefrom enter the casing by means of pipe 2 and pass therethrough as in-

indicated by the arrows, leaving the casing by means of pipe 3. During the travel of the gases or fumes through the casing they are compelled to pass through the receptacles 6 containing the material 5, which material prevents the passage of the sulfur or other particles. At the same time the receptacles are being shaken or jolted, as explained above, which action shakes the sulfur or other particles which have been retained by material 5 and allows the same to fall by gravity to the bottom of the casing 1 from which the deposited particles may be removed when desired in any suitable manner.

While 6 receptacles are shown it is of course understood that the invention is not limited to this number, it being only necessary to have sufficient material 5 to remove the particles carried by the gases or fumes.

Having described the invention, in connection with an embodiment thereof to the details of which the invention is not of course to be limited, what is claimed as new and what is desired to be protected by Letters Patent is set forth in the appended claims:—

1. In a device of the class described, in combination, a casing provided with an inlet and with an outlet, a plurality of baffle plates provided within the casing in staggered relation to each other to provide intercommunicating compartments, receptacles mounted for reciprocation within the said compartment, filter material mounted within each receptacle, and means for agitating the receptacles alternately.

2. In a device of the class described, in combination, a casing provided with an inlet and with an outlet, baffle plates provided with the casing in staggered relation to each other and affording intercommunicating compartments, receptacles mounted for reciprocation within the said compartments,

filter material mounted within each receptacle, a projection extending from the lower end of each receptacle to the bottom of said casing, a shaft journaled beneath the casing, and angularly disposed cams carried by the shaft and adapted to engage the said projections alternately to reciprocate the receptacles.

3. In a device of the class described, in combination, a casing provided with an inlet and an outlet, a receptacle mounted movably within said casing, means within said casing for collecting particles carried by gases or fumes passing through the casing, a projection extending from the lower part of said receptacle to the bottom of the casing, a shaft journaled beneath the casing, a cam carried by the said shaft and adapted to operatively engage said projection to operate the receptacle, and a bumper provided within the casing beneath the receptacle for engagement with the same during its downward movement.

4. In a device of the class described, in combination, a casing provided with an inlet and an outlet, a receptacle within said casing, means within said receptacle for collecting particles carried by gases or fumes passing through the casing, a projection extending from the lower part of said receptacle and through the bottom of said casing, a shaft below said casing and a cam carried by said shaft and adapted to operatively engage said projection to reciprocate said receptacle.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CALEB G. COLLINS.

Witnesses:

JAMES M. SPEAR,
H. M. BARRETT.