C. J. WOOD.

SEPARATOR AND DRIER.

APPLICATION FILED JUNE 4, 1919.

1,416,922.

Patented May 23, 1922.

4 SHEETS—SHEET 1.

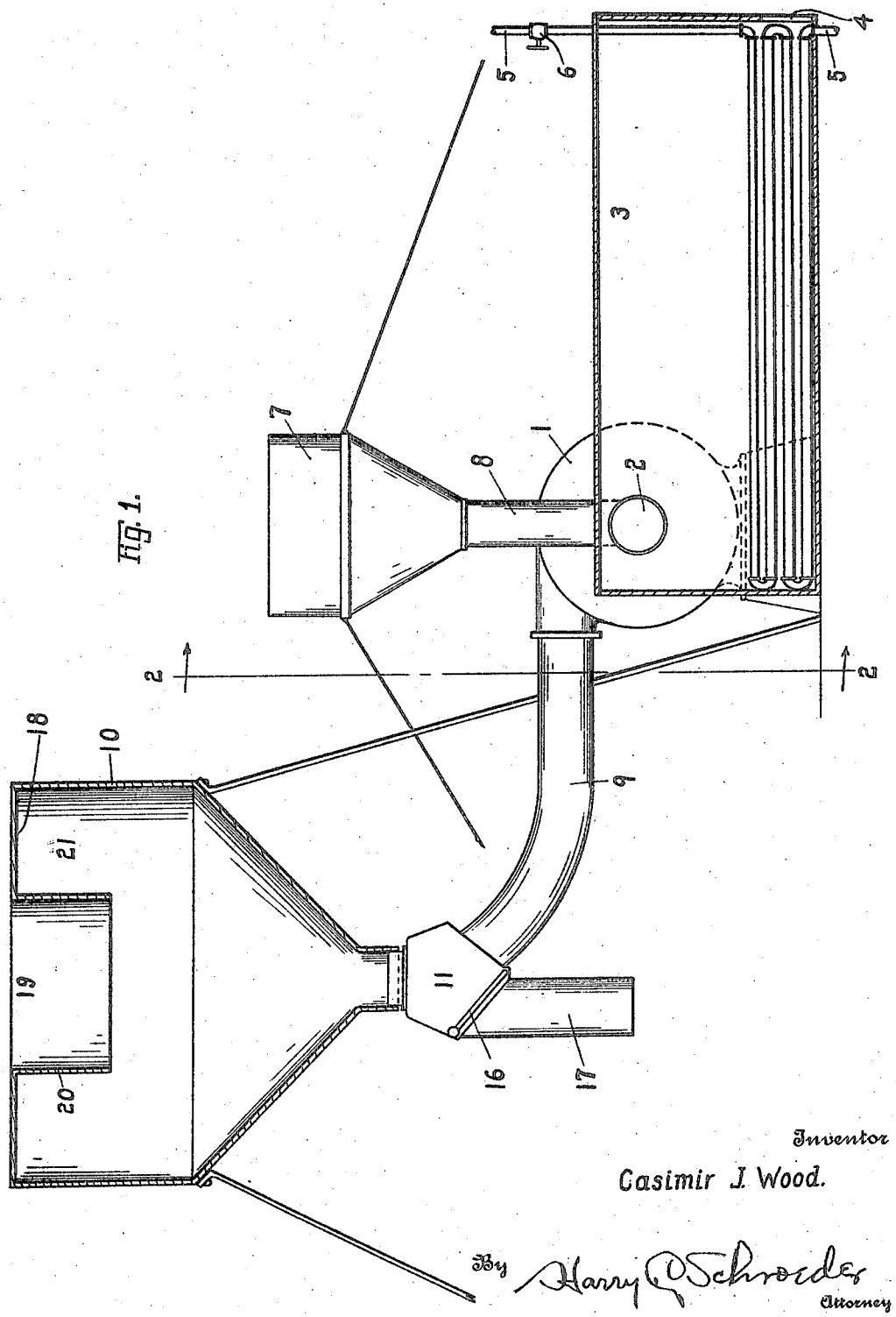


Fig. 1.

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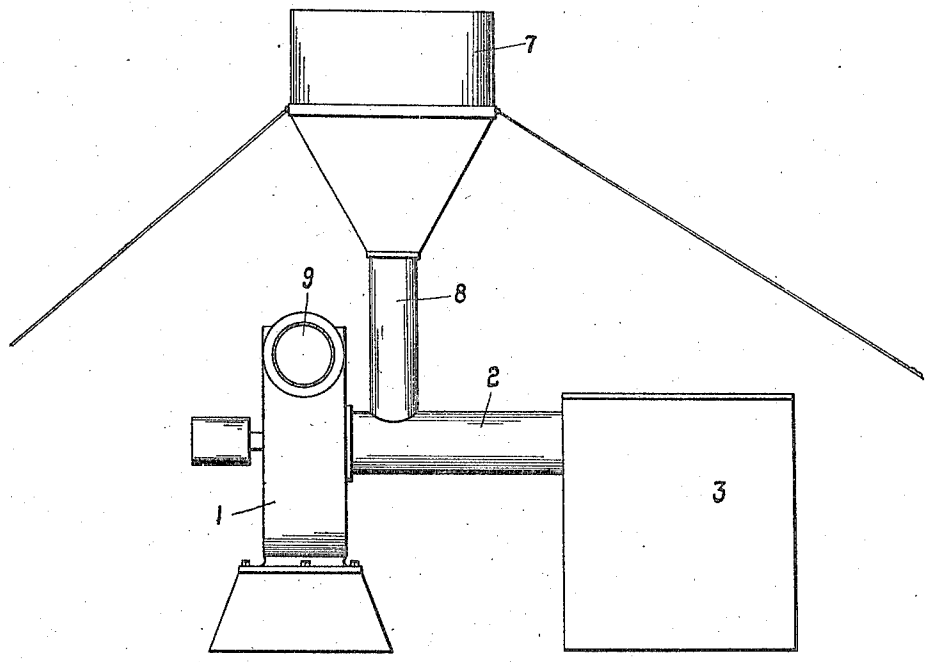


Fig. 2.

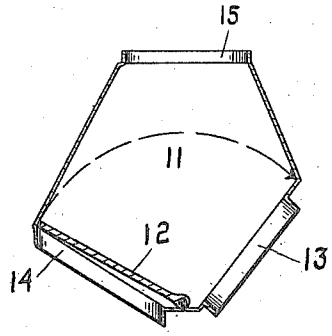


Fig. 3.

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4 SHEETS—SHEET 3.

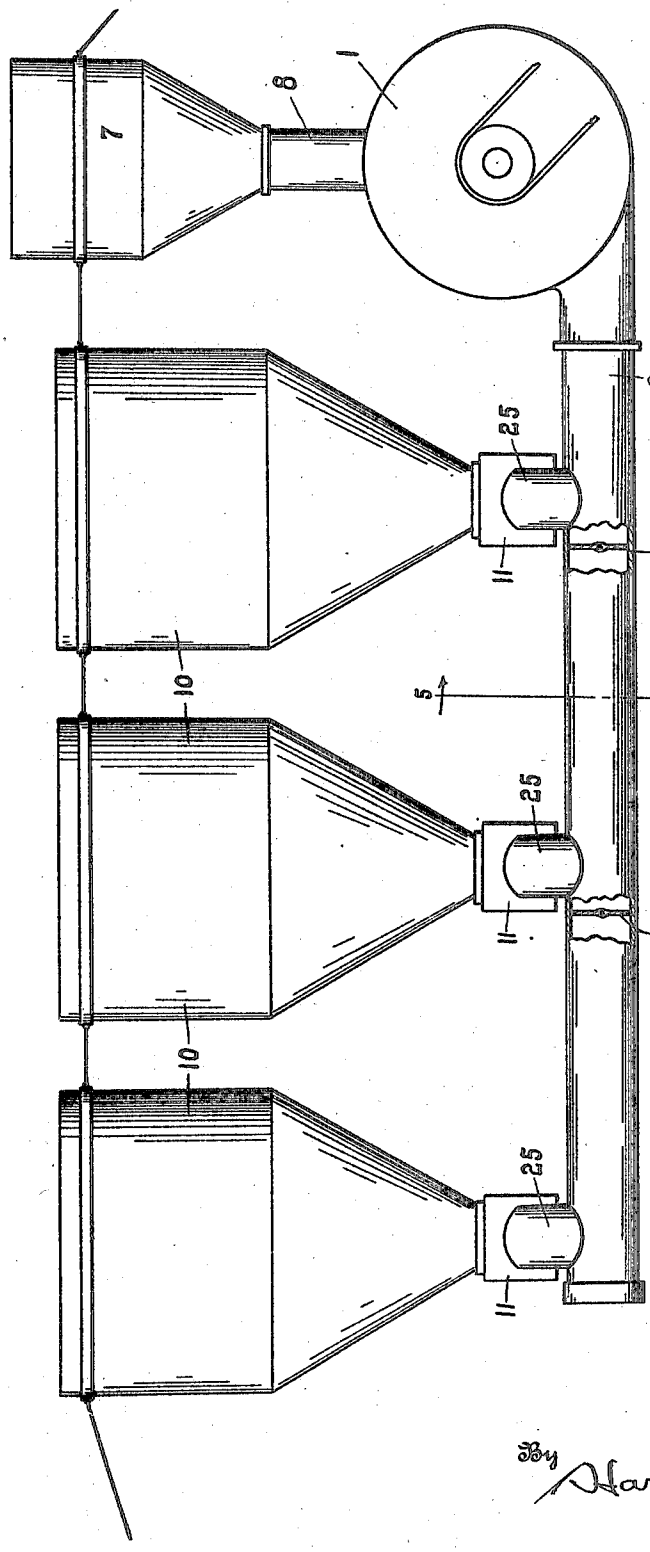


Fig. 4.

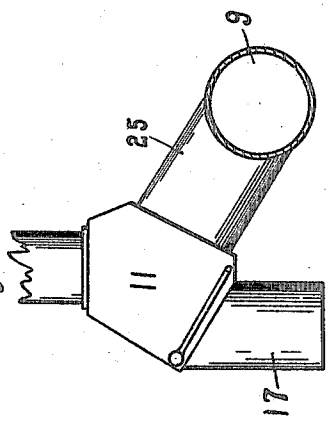


Fig. 5.

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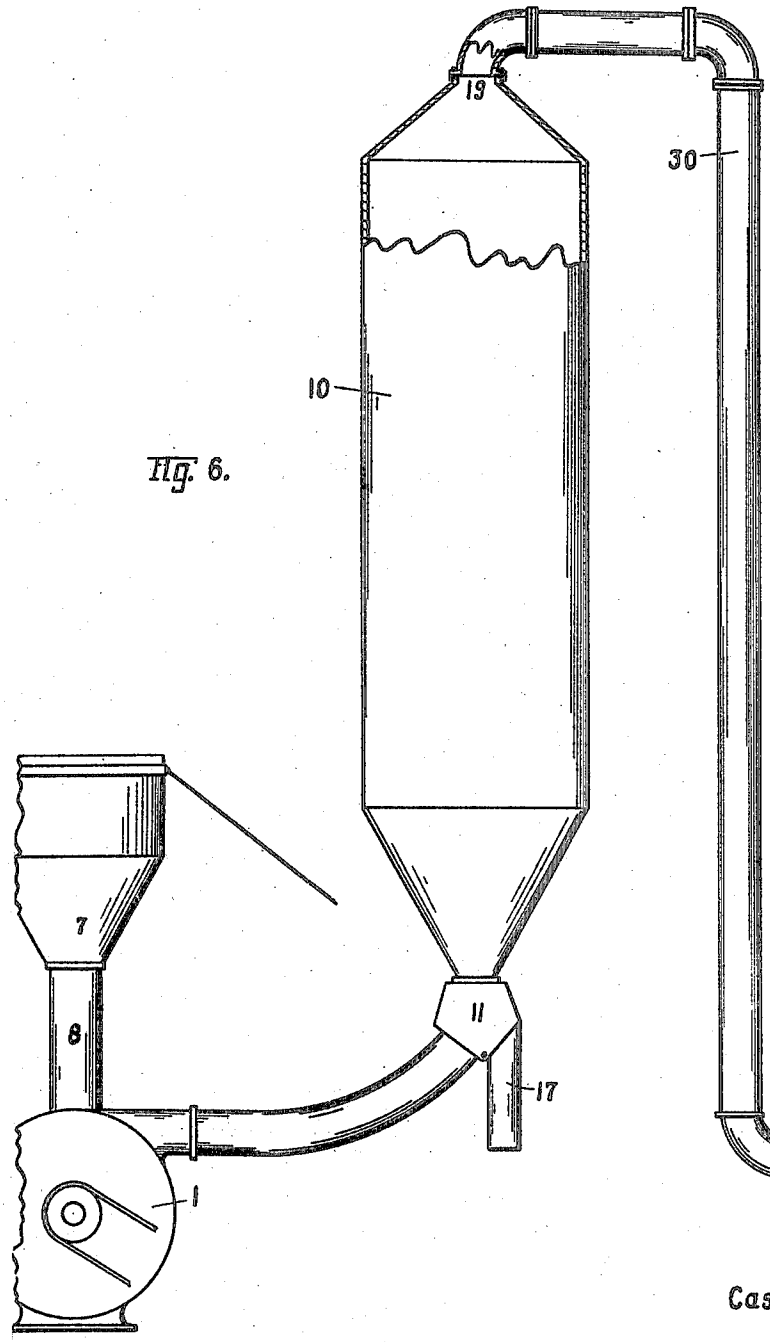


Fig. 6.

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UNITED STATES PATENT OFFICE.

CASIMIR J. WOOD, OF SAN FRANCISCO, CALIFORNIA.

SEPARATOR AND DRIER.

1,416,922. Specification of Letters Patent. Patented May 23, 1922.

Application filed June 4, 1919. Serial No. 301,700.

To all whom it may concern:

Be it known that I, CASIMIR J. WOOD, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Separators and Driers, of which the following is a specification.

My invention is a separator and drier, particularly useful for separating the larger from the smaller particles of sawdust and drying them.

My invention is illustrated in the accompanying drawings which form a part of this specification.

Referring to the drawings:

Figure 1 is a view partly in side elevation and partly in section of my invention.

Figure 2 is a transverse vertical section of my invention taken on line 2—2 of Fig. 1 looking in the direction of arrows.

Figure 3 is a vertical sectional view of the valve.

Figure 4 is a side elevation of a modified form of my invention.

Figure 5 is a sectional view taken on line 5—5 of Fig. 4 looking in direction of the arrows.

Figure 6 is a side elevation of another modified form of my invention.

In the drawings, 1 indicates a fan blower, to the inlet of which is connected a duct 2 leading from an air heating chamber 3. The chamber 3 has an air inlet 4, and a pipe 5 extends through the chamber and is coiled therein through which steam or hot water may be circulated for heating the air passing through the chamber. A valve 6 controls the passage of steam or hot water through the pipe 5. A hopper 7 is connected by duct 8 to duct 2. A duct 9 leads from the outlet of the blower 1 to the lower small end of a funnel-shaped separating and drying chamber 10, a valve casing 11 being interposed between the duct and receptacle. The bottom of the valve casing is formed by two converging walls each having ports 13 and 14 therein, respectively, and the casing further has a port 15 on its upper wall. A valve 12 is pivotally mounted in the casing 11 between the inlet 13 and the outlet 14 in order that it may be operated to alternately control each of the latter ports 13 and 14, the port 15 communicating with the chamber 10 being open. A handle 16 is secured to the pivot of the valve closure 12 outside of the valve casing for operating the valve. A spout 17 leads from the valve outlet 14. The top of the chamber 10 is closed by an upper wall 18 in the center of which is an outlet 19 around which a flange 20 depends from the wall 18, forming an annular space 21 between the flange and the side wall of the chamber. The opening 19 is directly over and in central alignment with the lower open end of the chamber 10 which communicates with the port 15 of valve 11.

The operation of my invention is as follows:

Sawdust is fed into the hopper 7 and drops through duct 8 into duct 2. The blower 1 draws air from chamber 3 and the sawdust in duct 2 into itself and forces the air and sawdust through duct 9 and valve casing 11 into chamber 10. The finer particles of the sawdust are blown out of the chamber through opening 19 while the larger particles spread and are agitated and dried within the chamber by the air, thus separating the larger particles of sawdust from the finer particles. Upon swinging the valve closure 12 away from outlet 14 and over inlet 13, and stopping the blower 1, the larger particles of dried sawdust drop from the chamber 10 through valve 11, port 14 and spout 17.

In the modified form of my invention shown in Figs. 4 and 5, the duct 9 is connected to a plurality of separating and drying chambers 10 by branch ducts 25. Valves 26 and 27 are placed in the duct 9. All of the chambers 10 receive and separate and dry sawdust when the valves 26 and 27 are open. Upon closing the valve 26 only the chamber nearest the blower is put in operation. Upon opening the valve 26 and closing the valve 27 the two chambers nearest the blower are put in operation while the remaining chamber is put out of operation. The chambers may be independently controlled by their valves 11. While one chamber is out of operation and the separated sawdust is being removed therefrom, another chamber may be operated. The advantage of this form of my invention is that it may be operated continuously, it not being necessary to stop the blower to remove the separated sawdust from a chamber.

The modified form of my invention shown in Fig. 6 is similar to the form shown in Figs. 1, 2, and 3, except that the upper wall of the separating chamber 10 converges to the outlet 19 and a duct 30 leads from said

outlet to a fan 31 for drawing the finer sawdust from said chamber, the heavier particles being discharged through the pipe 17 upon suitable operation of the valve in the valve casing 11.

Having described my invention, I claim:

1. A device of the character described comprising a separating chamber in which granular material is introduced and suspended therein in a column of air, a valve casing arranged below the separator and communicating therewith, said casing having an inlet port therein for admitting said air to the separator and having an outlet port in a lower portion thereof, and a valve for controlling said ports whereby the separator will discharge through said valve casing and said outlet therein when the inlet port in the casing is closed.

2. A device of the character described, comprising means for introducing granular material into a current of air, a valve casing having a bottom thereof composed of two converging walls, each formed with a port, one of said ports being connected with said means and the other providing a discharge outlet, a single valve pivoted at the confluence of said walls and between said ports to alternately close the same, a separating and drying chamber arranged over the valve casing and communicating with an upper portion thereof and positioned to discharge through the valve casing and the outlet therein, when the inlet port in the casing is closed.

3. A device of the character described, comprising means for introducing granular material into a current of air, a conduit leading from the delivery side of said means and having a plurality of spaced cut-off valves therein providing a plurality of stations in the conduit, a plurality of separating chambers each connected with one of the stations, and means for controlling communication between each chamber and its respective station, whereby selected communication may be established between the blower and any of said chambers or all of said chambers.

In testimony whereof I affix my signature.

CASIMIR J. WOOD.