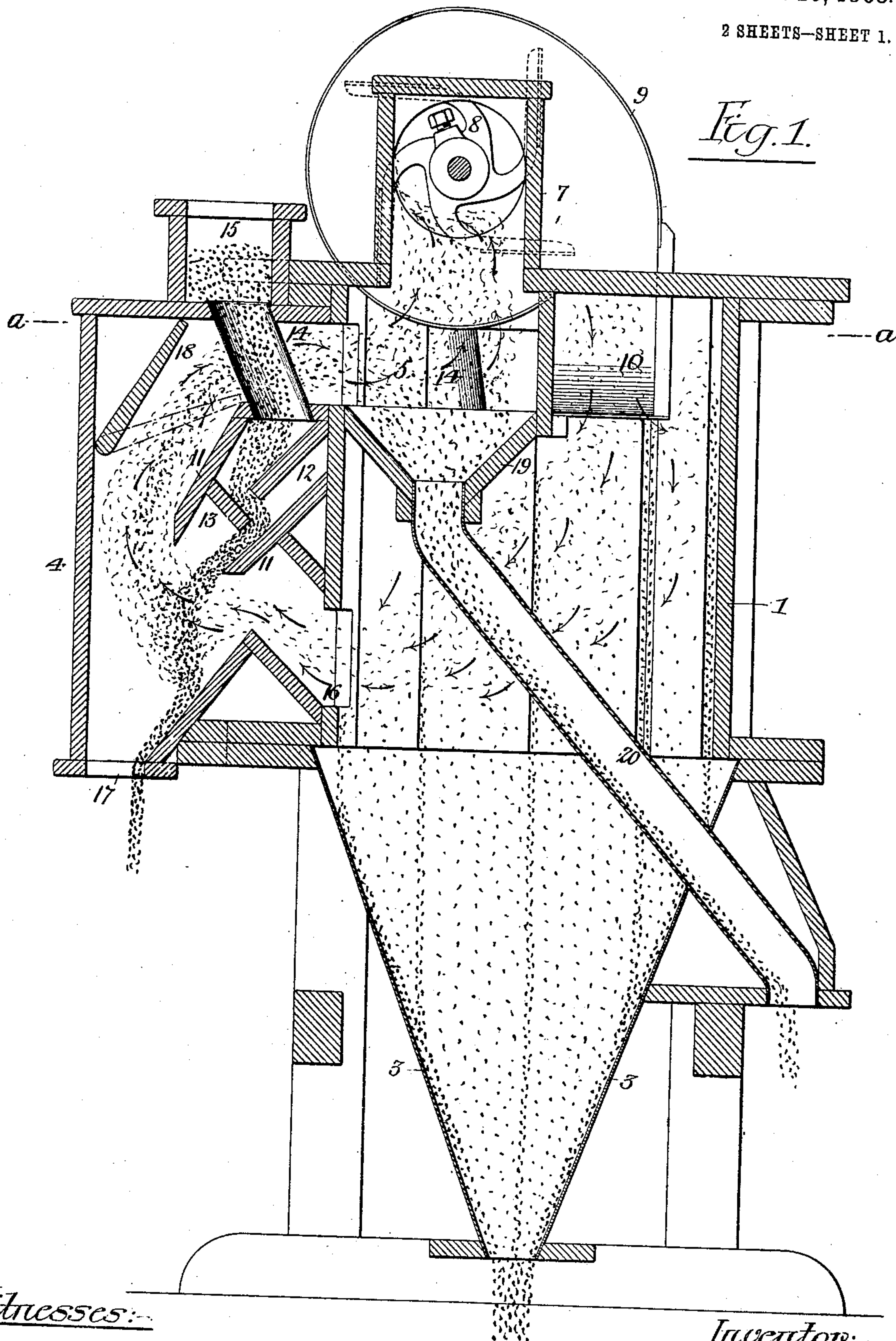


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SEPARATOR FOR GRAIN, MIDLINGS, &c.  
APPLICATION FILED JULY 3, 1903.

903,804.

Patented Nov. 10, 1908.

2 SHEETS—SHEET 1.



Witnesses:

Hamilton S. Zinner  
Norman E. Metcalf

Inventor:

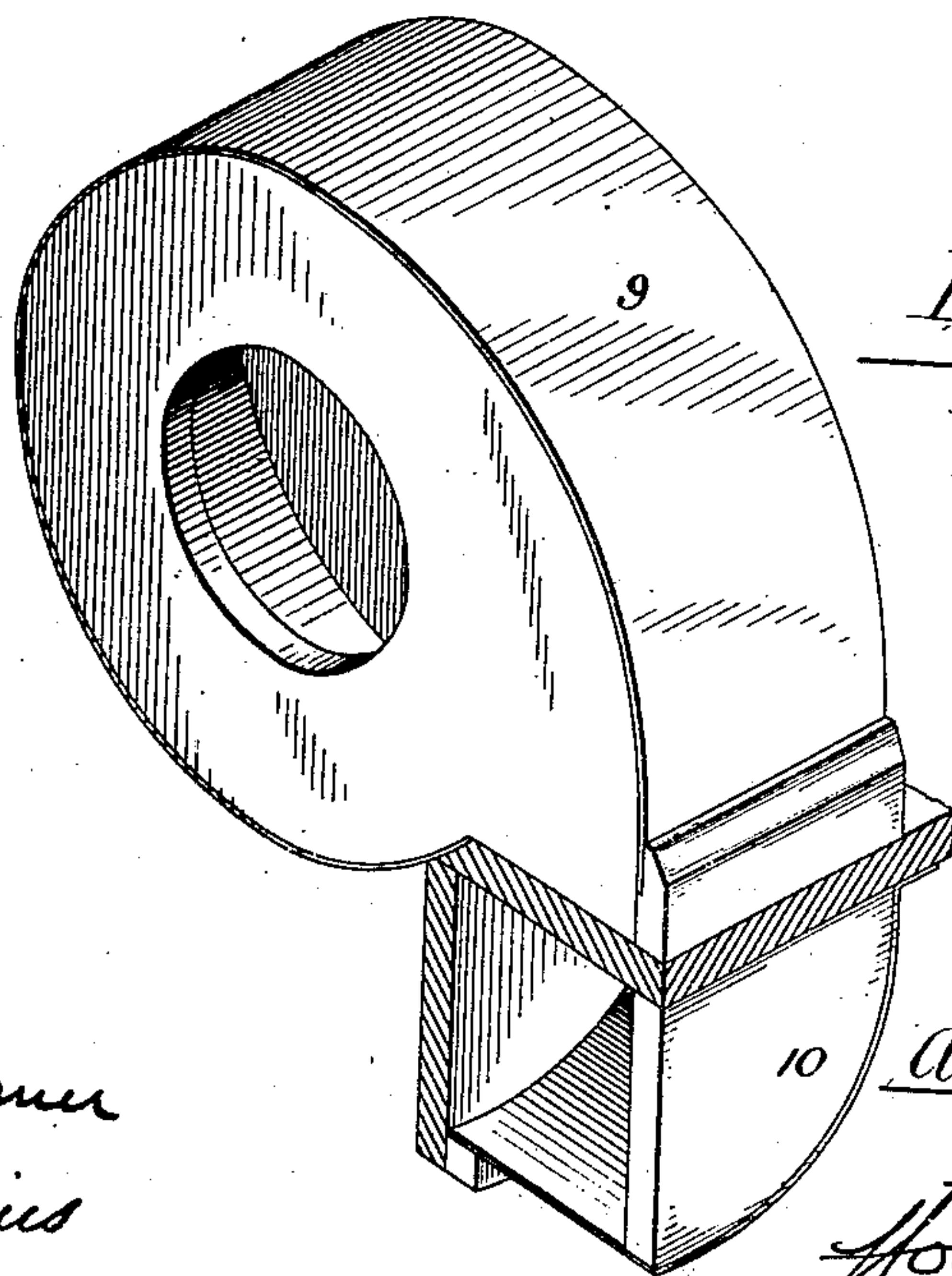
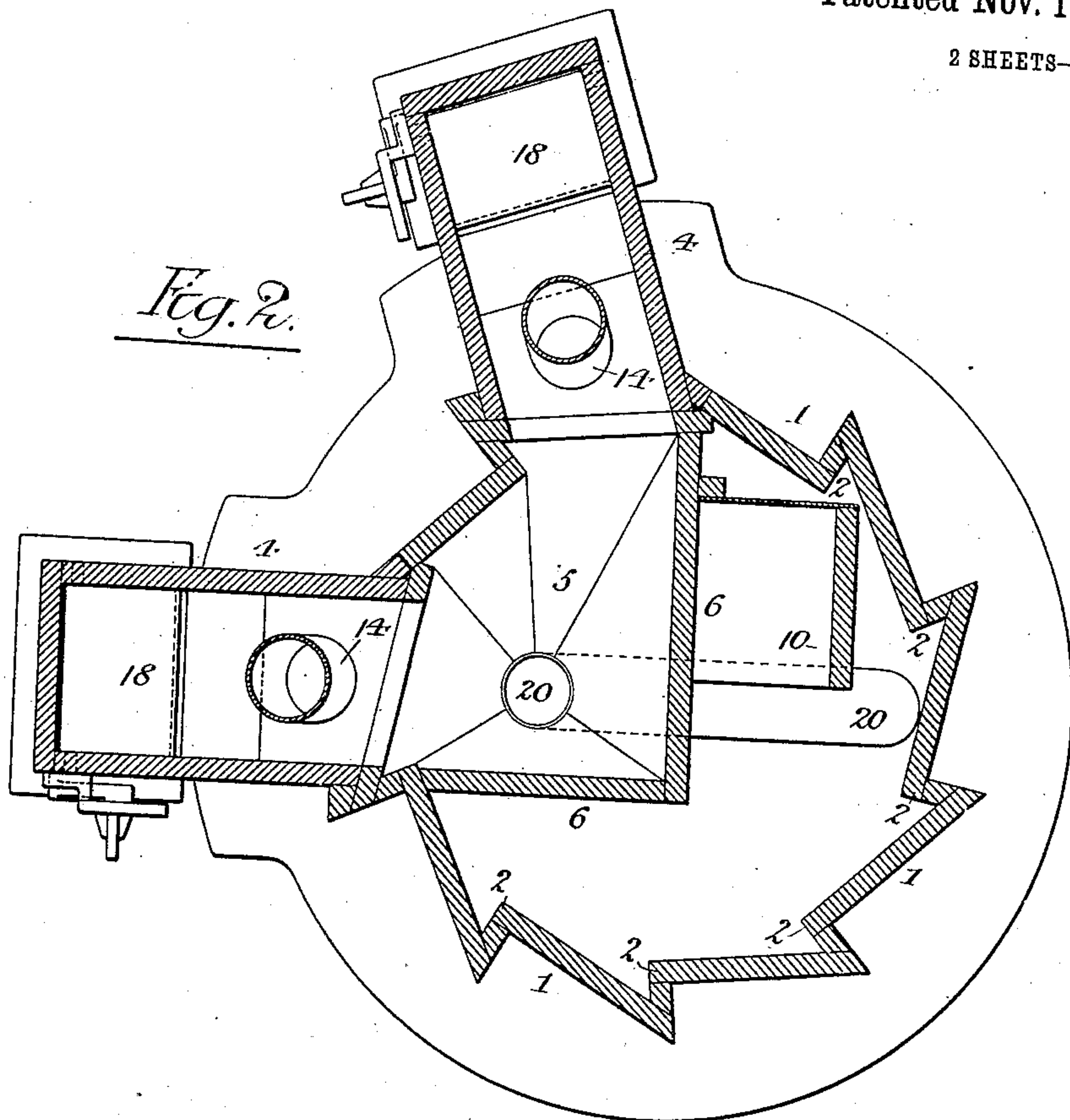
Augustus Wolf,  
by his Attorneys;  
Hosmer & Howes

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2 SHEETS—SHEET 2.



Witnesses:

Hamilton S. Turner  
Norman C. McKies

Inventor:

Augustus Wolf,

by his Attorneys:

Howson & Howson



# UNITED STATES PATENT OFFICE.

AUGUSTUS WOLF, OF CHAMBERSBURG, PENNSYLVANIA.

SEPARATOR FOR GRAIN, MIDDLINGS, &c.

No. 903,804.

Specification of Letters Patent.

Patented Nov. 10, 1908.

Application filed July 3, 1903. Serial No. 164,244.

*To all whom it may concern:*

Be it known that I, AUGUSTUS WOLF, a citizen of the United States, and a resident of Chambersburg, Pennsylvania, have invented certain Improvements in Separators for Grain, Middlings, &c., of which the following is a specification.

The object of my invention is to provide simple, compact, and effective apparatus for purifying grain middlings, or other material comprising portions of different specific gravity, an object which I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1, is a vertical sectional view of apparatus constructed in accordance with my invention; Fig. 2, is a sectional plan view of the same on the line *a—a* Fig. 1; and Fig. 3, is a perspective view of the fan casing of the machine.

1 represents the casing of the apparatus which incloses a chamber 1<sup>a</sup> and is composed of panels so disposed as to form internal vertical or substantially vertical shoulders 2, the casing surmounting a funnel 3 which is of inverted conical form and has a suitable outlet at the bottom.

From certain of the panels of the casing 1 project radiating trunks 4, two of these trunks being shown in the present instance, although but a single trunk, or more than two may be used, as desired. Each trunk 4 communicates at its inner end with a chamber 5 contained within a casing 6 which is constructed within the upper portion of the chamber 1<sup>a</sup>, said chamber 5 communicating, at the top, with the chamber within the suction box 7 of an exhaust fan 8, mounted upon the upper portion of the main casing or chest 1.

The casing 9 of the exhaust fan has a laterally bent outlet branch 10 whereby the discharge from the fan is directed in a horizontal or substantially horizontal course into the upper portion of the chamber 1<sup>a</sup> on one side of the center of the same, whereby the material discharged from said fan is given a whirling or gyrating course within the chamber 1<sup>a</sup> and is thereby caused to impinge upon the inwardly projecting shoulders 2 presented by the casing 1, being caught and retained thereby, until, under the influence of gravity, it descends into the hopper 3 and thence passes to the outlet at the bottom of said hopper.

Each of the trunks 4 contains a chute 11 with internal deflectors 12 and 13, the upper end of this chute being in communication, through a pipe 14, with a receiving box 15 at the top of the trunk, and, besides communicating at its upper end with the chamber 5, the chamber within each trunk communicates, at the lower portion of the trunk, with the chamber 1<sup>a</sup> through a port 16, the bottom of each trunk chamber also having an outlet 17.

Communication between the interior of each trunk and the chamber 5 is regulated by a swinging valve 18 in the upper portion of the trunk, and the lower portion of the chamber 5 forms a hopper 19 which communicates with a discharge pipe 20 leading to an outlet at one side of the hopper 3.

Material deposited in the receiving box 15 flows through the pipe 14 in the upper end of the chute 11 and its descent in said chute is restricted by the partitions 12 and 13 so that the material is delivered from the lower end of the chute in a thin stream, and falls across the current of air drawn from the chamber 1<sup>a</sup> by the influence of the suction fan 8, the strength of this current being determined by the adjustment of the valve 18. All impurities having less than a certain predetermined specific gravity are therefore separated from the material by this air current, the purified material escaping through the outlet 17 and the lighter particles separated therefrom ascending in the trunk 4 and passing beneath the valve 18, around the pipe 14 and thence into the chamber 5, where a still further separation takes place, the heavier particles falling into the hopper 19 and escaping thence through the pipe 20, and the air, with the lighter particles carried thereby, passing up into the suction box 7 of the fan and being drawn into the latter. From the curved outlet 10 of the fan casing 9 the air, with these lighter particles still in suspension therein, is delivered laterally into the upper portion of the chamber 1<sup>a</sup> with such force that the said particles are thrown outwardly against the walls of the chamber and are caused to take a rotating or gyrating course, hence the particles are caught and held by the internal shoulders 2 of the casing until, under the influence of gravity, they fall into the hopper 3 and are discharged from the lower end of the same, the air, thus freed from the particles formerly suspended therein, being again



drawn into the trunks 4 so as to repeat its separating action upon a fresh supply of material. By this means three separations of each body of material are effected, each  
5 grade of separation being directed to its appropriate independent outlet, and by multiplying the number of trunks with which the machine is provided it may be caused to perform a high percentage of work considering  
10 the amount of space which it occupies.

Having thus described my invention, I claim and desire to secure by Letters Patent:—

1. A separator consisting of a casing provided with a series of substantially vertical  
15 ribs, a fan carried by said casing and discharging thereinto in a substantially horizontal plane, a hopper forming the bottom of the casing, a chamber within the casing  
20 delivering into the fan, a trunk delivering into the chamber and connected to the casing, and a receiving structure discharging into the trunk so that air from the casing is delivered across a stream of falling grain,  
25 there being outlets from the casing, the chamber and the trunk.

2. A separator consisting of a chamber

having its sides formed of a number of sets of pieces, each set of which consists of two substantially vertical boards joined at their  
30 edges and extending at an angle to each other, the free edge of one board of each set being joined to the free edge of a board of another set to form a series of substantially vertical ribs in the chamber, a fan carried by  
35 said chamber and discharging thereinto in a substantially horizontal plane, a hopper forming the bottom of the chamber, a structure delivering into the fan, and a receiving structure, also within the chamber, for catch-  
40 ing falling particles on their way from said structure to the fan, said structure containing a series of partitions forming a chute and having an opening whereby air from the  
45 chamber is delivered across a column of grain falling through said chute.

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

AUGUSTUS WOLF.

Witnesses:

CHARLES W. BAUMANN,  
M. N. HARTZ.