C. METTLER, SR.

GRAIN CLEANER.

APPLICATION FILED JUNE 28, 1920.

1,356,777.

Patented Oct. 26, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

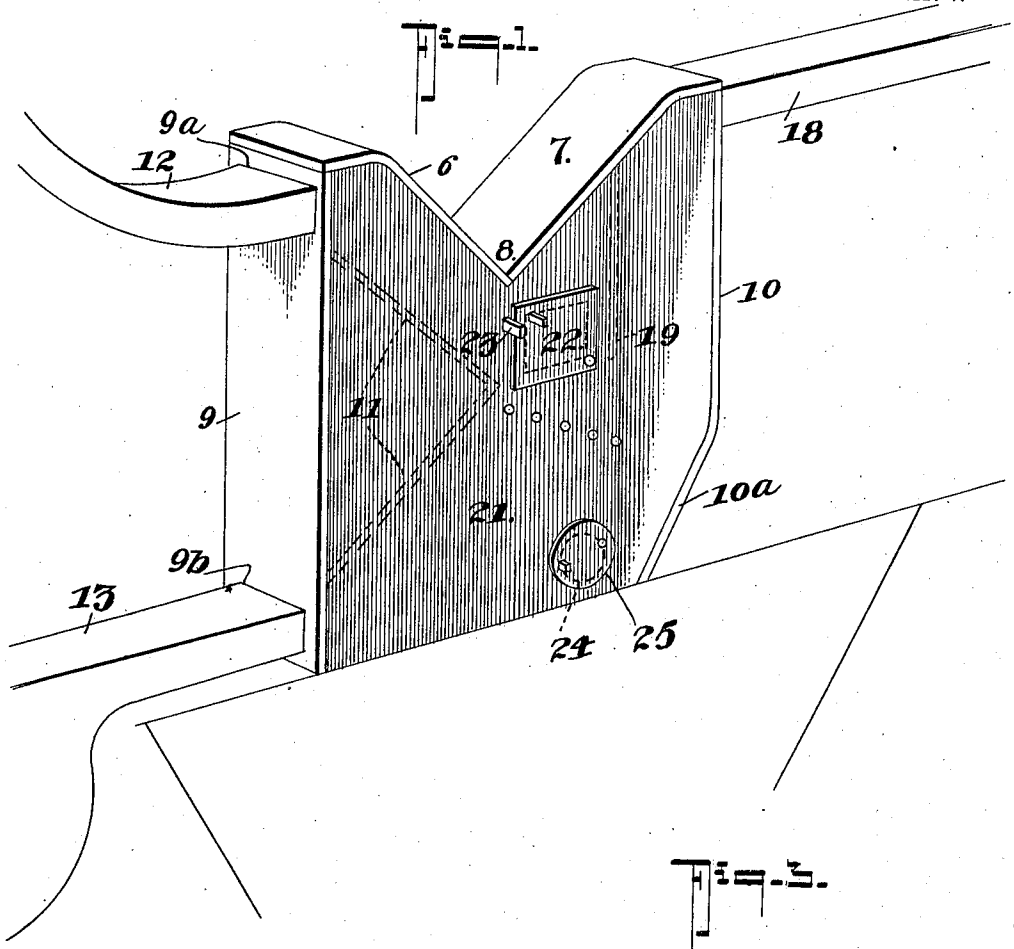
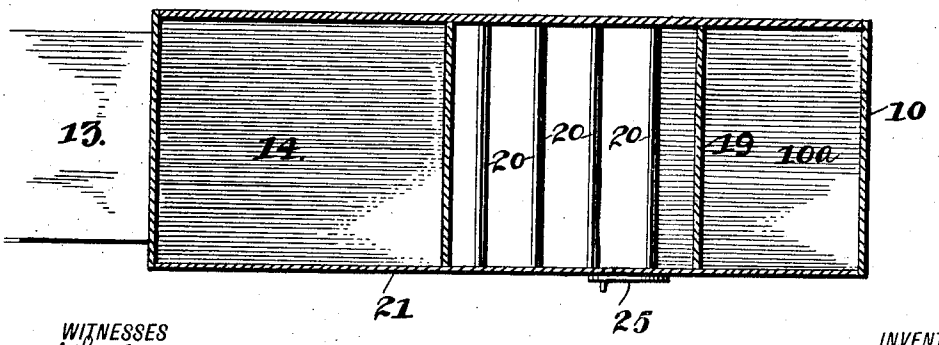


Fig. 2.



WITNESSES

Geo. D. Hall.

G. S. Brock.

INVENTOR

Christoph Mettler Sr.

BY Munn & Co.

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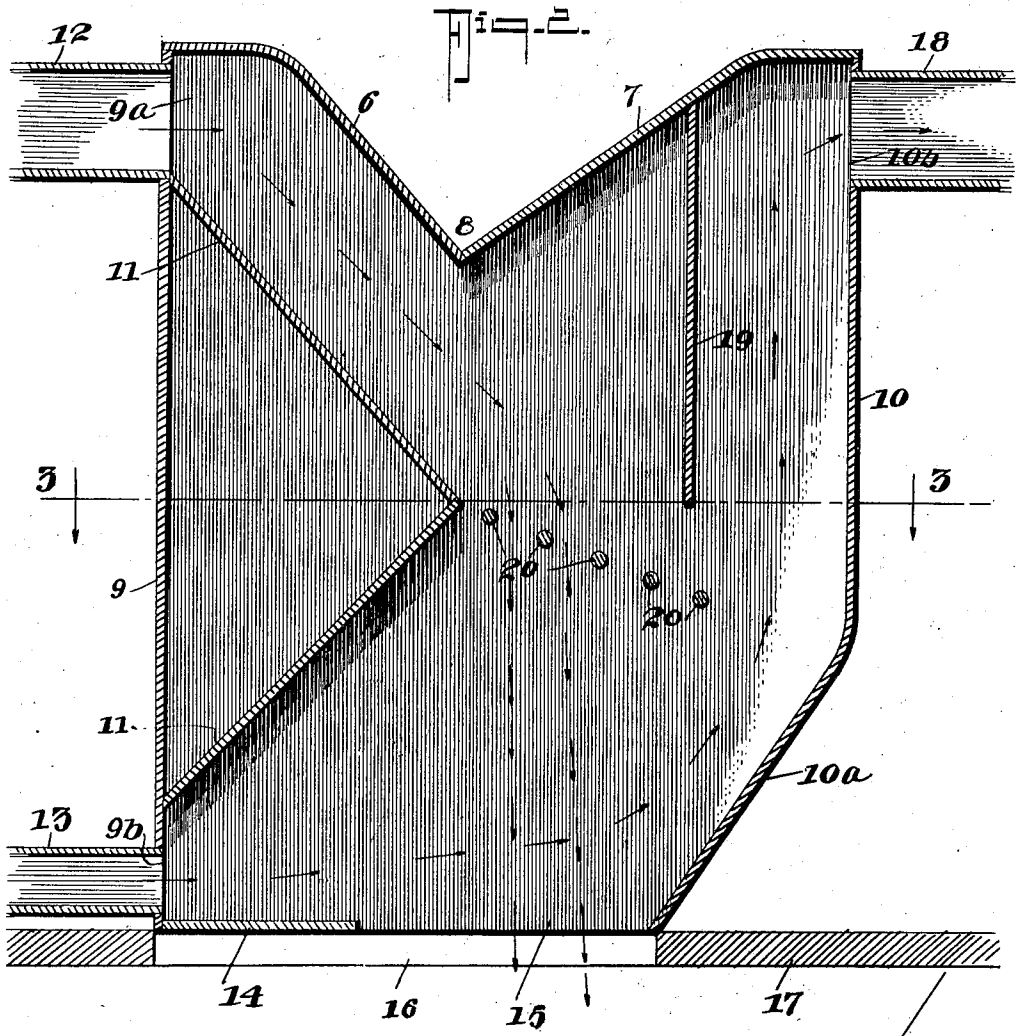
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UNITED STATES PATENT OFFICE.

CHRISTOPH METTLER, SR., OF MENNO, SOUTH DAKOTA.

GRAIN-CLEANER.

1,356,777. Specification of Letters Patent. Patented Oct. 26, 1920.

Application filed June 28, 1920. Serial No. 392,257.

To all whom it may concern:

Be it known that I, CHRISTOPH METTLER, Sr., a citizen of the United States, and a resident of Menno, in the county of Hutchinson and State of South Dakota, have made certain new and useful Improvements in Grain-Cleaners, of which the following is a specification.

The present invention relates to cleaning devices and has reference more particularly to devices for cleaning, cooling and drying grains by air blasts.

The object of my invention is to produce a device by which various grains may be cleaned, cooled, dried and otherwise improved, which is simple in construction, easy to make and carries no mechanical parts to get out of order or require lubrication.

With this and other objects in view my invention consists in certain novel features of construction, arrangement and combination of parts as will be hereinafter set forth and pointed out in the claims, reference being had to the drawing in which:

Figure 1 is a perspective view showing the cleaner as installed.

Fig. 2 is a vertical longitudinal section enlarged.

Fig. 3 is a horizontal longitudinal section taken on line 3—3 of Fig. 2.

As a practical embodiment of my invention I utilize a casing which is a box-like structure introduced between supply and storage elements, and may be of any suitable material.

The casing includes a top and bottom, front and rear walls and end walls, the casing being of considerably greater extent from end to end than from front to rear.

The top includes two sections 6 and 7 which extend from the upper corners of the ends a short distance horizontally and then obliquely converging meeting in an angle 8; it will thus be seen that top wall projects downwardly into the casing.

The end walls are designated by 9 and 10 the wall 9 having openings 9^a and 9^b at its upper and lower ends respectively.

11 represent oppositely slanting partitions secured to the inner surface of end wall 9 and the same width as the casing thus filling the space between the front and rear walls.

The upper partition 11 begins at the lower end of the opening 9^a and extends into the casing approximately parallel with the section 6 of the top thus forming a downwardly inclined chute.

The lower partition 11 begins a short distance above the opening 9^b which is of somewhat less area than the opening 9^a, and extending upwardly within the casing at an angle meets the upper one of the partitions in a point at approximately the vertical center of the complete device.

To the opening 9^a is applied a tubing 12 through which grain is delivered to the cleaner, and at the bottom of the same side to the opening 9^b is applied the tubular spout 13 through which blasts of air are fed into the casing.

The lower end of the casing is partially closed by a bottom section 14 which extends about one half way across the lower end leaving a space or opening 15 through which the cleaned grain falls into a bin or other suitable receptacle or provision made for such. The bottom of the casing is fitted in an opening 16 in a floor or platform 17.

The end wall 10 bends inwardly and downwardly as shown in Fig. 2 presenting an inclined wall 10^a which acts to deflect the entering air blast upwardly that it may discharge through the opening 10^b in wall 10, and the discharge spout or tube 18.

Depending from the member 7 of the top is a baffle board 19 which fills the space between front and rear walls and extends downwardly to a point in substantially the horizontal plane of the meeting points of partitions 11. This baffle it will be noted is in advance of the inclined entrance chute and intervenes between the same and the discharge outlet 10^b.

The reference characters 20 indicate round rods extending from front to rear of the casing within the same and they are disposed in a slanting series in a plane which is substantially a continuation of the lower wall or floor of the grain inlet chute; the distance between the respective rods of this series is such as to generally let the grains pass freely yet close enough to offer some obstruction and cause the grains to be whirled or tumbled as they drop toward the opening in the bottom.

In the front wall 21 of the casing is provided an opening which is controlled by a pivoted door 22 which is held in its closed position by a keeper 23. This opening may be used to clean out the casing should straw

or refuse become caught or clogged in the inclined chute.

At the lower end of the casing the front wall is also provided with a hand-hole 24 covered by a gate valve or cover 25 pivotally secured to the front wall; through this hand-hole the lower end of the casing can be relieved should it become clogged.

It is thought that the operation of the device will be obvious it being understood that grain enters the casing at 9^a and at the same time and continuously a blast of air is delivered into the casing and through the current of the entering grain; the entering grain is carried down the inclined chute by its weight and force of gravity, and if any should enter with sufficient force to go across the casing it will strike the baffle 19 and fall toward the round rods 20 disposed in a slanting or oblique series.

The grain being heavier than the impurities with which it may be mixed such as smut, chaff, etc., falls through the opening 15 in bottom of casing after having been tumbled on rods 20 thereby loosening and knocking off any adhering foreign substances, and also cleaning to some extent.

The entering air blast coming in through tube or spout 13 blows the light foreign substances over toward the inclined wall 10^a which deflects the blast upwardly as indicated by the arrows in Fig. 2 carrying the dirt, etc., and discharging through spout 18.

I claim:

1. A grain cleaner comprising a casing having a grain inlet at one upper corner, an air blast inlet at the corresponding lower corner, means within the casing for causing the currents of grain and air to intersect at approximately the center of the casing, an open inclined grate below the region of intersection, the lower end of the casing having a discharge opening for the cleaned grain and a discharge outlet for air and impurities in the side opposite the entrance side, and disposed diagonally opposite the air blast entrance, and a vertical deflector plate disposed between the air outlet and region of air and grain intersection at approximately the vertical plane of the terminal of the grate.

2. A grain cleaner comprising a casing having top and bottom, front and rear, and end walls, the top wall comprising a pair of sections converging downwardly forming an entrant angle, one side wall also having an entrant angle forming with the top section an inclined grain entrance chute, the said side wall having below the entrant portion an air blast entrance, a series of transverse bars disposed in an inclined plane beyond the lower end of the grain entrance chute, a baffle plate depending from the top wall beyond the entrant angle and projecting toward said bars, the bottom of the casing provided with a discharge aperture for the cleaned grain, the discharge side wall having its lower end inclined inwardly to said grain discharge aperture, the upper end of said wall provided with a discharge for mixed air and impurities.

3. In a device of the character and for the purposes specified, the combination with a casing having spaced apart front and rear walls, of a grain entrance and air blast inlet in one end wall, a downwardly inclined chute leading inwardly from the grain entrance, an inclined series of rounded transverse bars continuing beyond the lower end of said chute and at approximately the same inclination, a baffle plate depending vertically from the top of the casing between said transverse bars and a discharge aperture at the upper corner of the other end wall of the casing and projecting toward said bars, the lower portion of said last named end wall inclined downwardly and inwardly to form a deflecting surface whereby mixed air and impurities are directed upwardly to the discharge aperture, and means carried by front wall to permit cleaning both above and below the inclined series of transverse rods.

CHRISTOPH METTLER, SR