H. L. DAY.

SEPARATOR.

APPLICATION FILED DEC. 7, 1908.

1,029,571. Patented June 11, 1912.

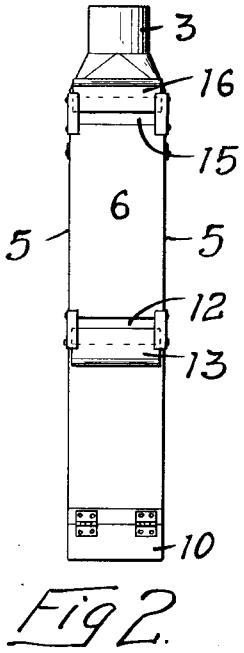

Fig 2.

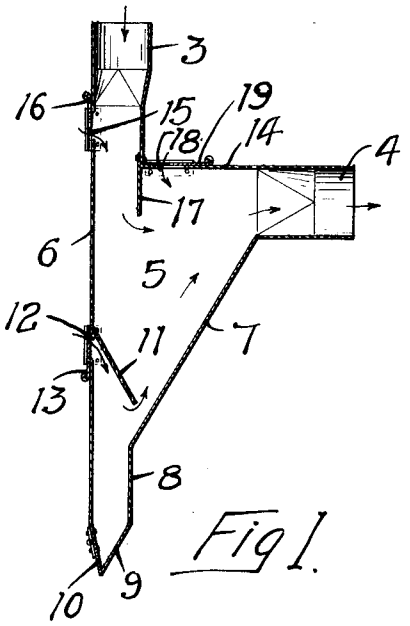

Fig 1.

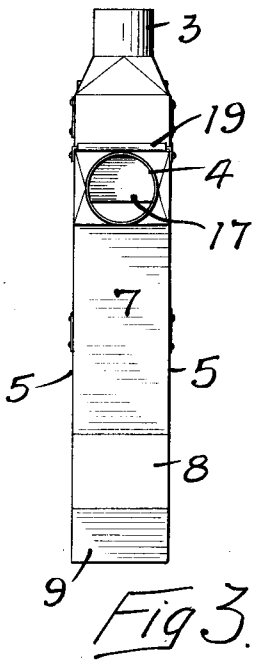

Fig 3.

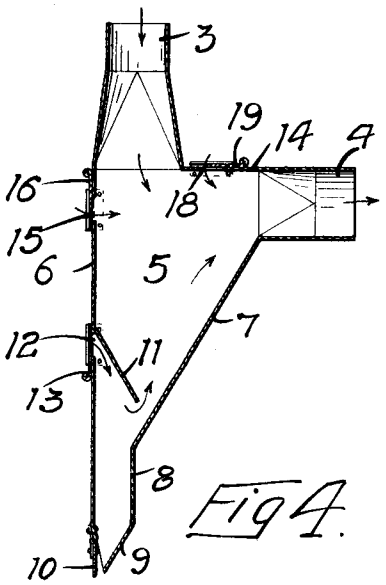

Fig 4.

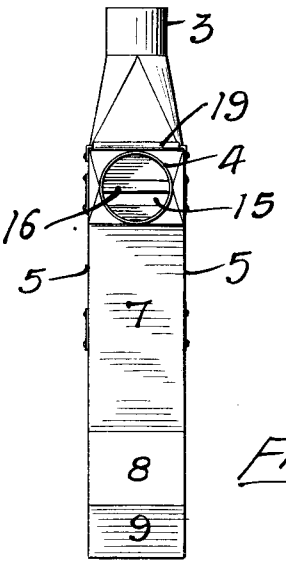

Fig 5.

WITNESSES

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SEPARATOR.

1,029,571. Specification of Letters Patent. Patented June 11, 1912.

Application filed December 7, 1908. Serial No. 466,295.

To all whom it may concern:

Be it known that I, HENRY L. DAY, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Separators, of which the following is a specification.

This invention relates to improvements in separators designed for use in connection with dust-collecting systems, and the objects I have in view are to provide a separator in which the grain may be separated from dust and similar light material, or in which any comparatively heavy material may be separated from dust or similar light materials.

The invention consists generally in the constructions and combinations hereinafter described and particularly pointed out in the claim.

In the accompanying drawings, forming part of this specification; Figure 1 is a vertical sectional elevation of a separator embodying my invention. Fig. 2 is an end elevation looking toward the right in Fig. 1. Fig. 3 is a similar view looking toward the left in Fig. 1. Fig. 4 is a view similar to Fig. 1, but showing a slightly modified construction. Fig. 5 is an end elevation of the device shown in Fig. 4 looking toward the left in said figure.

In the drawings, 2 represents the main part or casing of the separator having at the top the inlet conductor 3, and, at one side, the exit conductor 4. The side walls 5, 5 of the casing are preferably vertical and parallel to each other. The end wall 6 is also preferably vertical, while the end wall 7 slopes inward from the under side of the exit conductor 4 to a point near the lower end of the casing, the lower part, however, having preferably the vertical wall 8, and the inclined bottom wall 9. This construction forms a pocket at the bottom of the casing for the reception of the grain and heavier material. An automatically opening door 10 is preferably provided at the bottom of the vertical wall 6. The casing is also provided with the top wall 14. An inclined deflector 11 is preferably arranged to extend forward and downward from the wall 6, nearly to the inclined wall 7 and an opening 12 is formed in the wall 6 below the deflector 11. A suitable slide 13 is arranged over the opening 12, by which means the said opening may be wholly or partially closed.

An opening 15, provided with a slide 16, is preferably provided in the wall 6 above the opening 12. The opening 15 may be provided above the main part of the casing and communicating with the inlet conductor 3, as shown in Fig. 1, or it may be at a lower point and opposite the outlet conductor 4, as shown in Fig. 4. In the former instance, I have shown a deflector 17 extending downward from the top wall 14 of the casing, preferably substantially on a line with the inner wall of the inlet conductor. I also prefer, in some instances, to provide an opening 18, provided with a slide 19, in the top wall of the casing, as shown in Fig. 1.

The grain and the dust and light material pass into the separators through the inlet conductors 3. The air entering the casing of the separator expands in this casing, and the grain and heavier material drops into the pocket in the bottom of the casing, and, when a sufficient amount has accumulated therein, the weight thereof opens the door 10 and the material falls out.

The outlet conductors 4, of all the separators, are connected to a suitable fan casing. By this means a current of air is drawn across the casing of the separator and into the outlet conductor 4. A part of this air may enter the casing from a dust collector above with the mixed material and the rest is drawn into the casing through the several openings in its walls, the amount entering through each opening being regulated by the slide over the opening. The air that enters through the opening 12 must pass under the deflector 11, and it passes upward through the narrow space between the edge of the deflector and the wall 7 of the casing. In its upward course it meets the falling material and picks up any dust or light material that may be mixed therewith and takes it along to the exit conductor. The air entering through the opening 15 in the wall of the casing also passes across the chamber and through the mixed material in said chamber and assists in separating and carrying off the light material. If the current across the chamber is too strong the slide 19 may be opened and a part of the air for the exit conductor may be applied through the opening 18. By this means the mixed material, such as commingled grain and dust, or other comparatively heavy material having dust or

light material mixed therewith, entering the separator chamber, has the light material separated from the heavy material and carried away through the exit conductor, while the heavier material falls into the bottom of the casing, and finally drops out through the door at the bottom.

I do not limit myself to the details of the construction herein described, as the same may be varied in many particulars without departing from my invention.

I claim as my invention:

In a dust-collecting system, a separator having at its upper end an inlet, and provided with an expansion chamber below said inlet and having a closed pocket at its lower end, an automatically closing door for permitting the escape of material from said pocket, a wall inclining upwardly from the pocket toward a discharge exit at the upper portion of the expansion chamber, the opposite wall of the expansion chamber being provided with an upper inlet opening in proximity to said discharge exit and an independent inlet opening near the lower portion of the expansion chamber, and a deflector disposed over said last-named inlet opening, substantially as described.

In witness whereof I have hereunto set my hand this 13th day of October, 1908.

HENRY L. DAY.

Witnesses:

C. G. HANSON,

J. A. BYINGTON.