No. 891,688. PATENTED JUNE 23, 1908.

W. GRAY.

FEED FOR GRAIN, ORE, AND MINERAL SEPARATORS.

APPLICATION FILED OCT. 23, 1906.

Fig. 1.

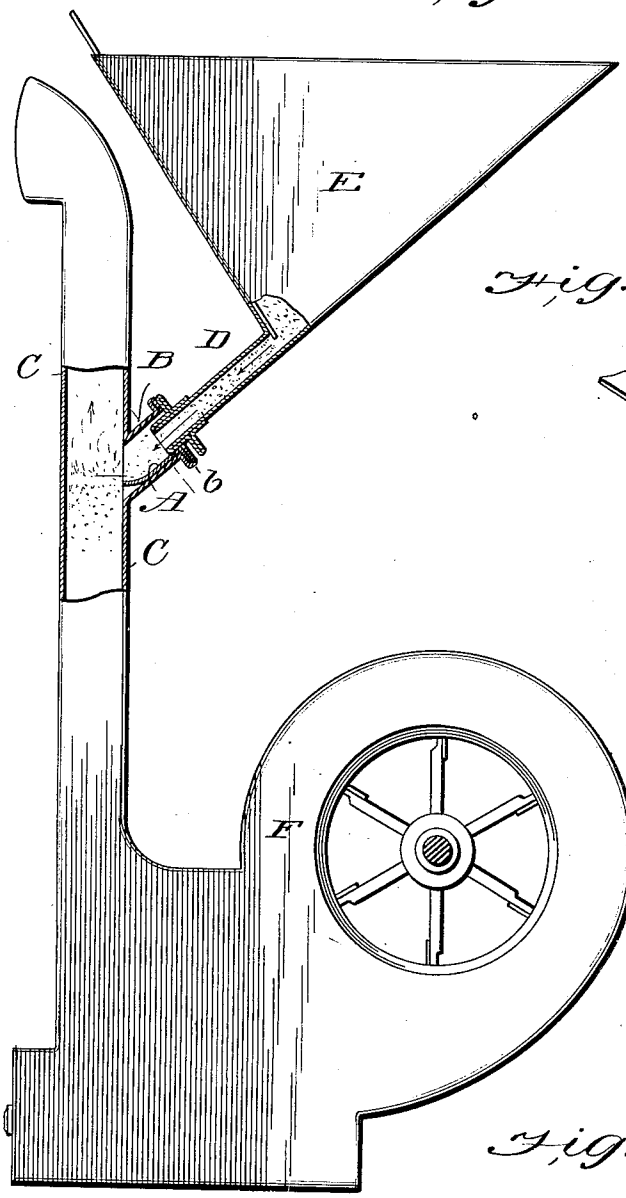


Fig. 3.

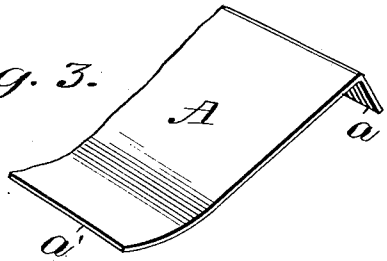
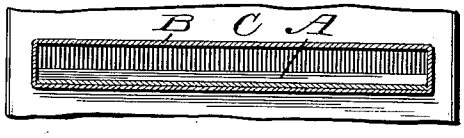


Fig. 2.



WITNESSES

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FEED FOR GRAIN, ORE, AND MINERAL SEPARATORS.

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Application filed October 23, 1906. Serial No. 340,123.

To all whom it may concern:

Be it known that I, WILLIAM GRAY, a citizen of the United States, and resident of Lincoln, in the county of Lancaster and State of Nebraska, have invented an Improved Feed for Grain, Ore, and Mineral Separators, of which the following is a specification.

My invention consists in certain novel constructions and combinations of parts as hereinafter specified and claimed.

In the accompanying drawing—Figure 1 is a side elevation and section of a separator provided with my improvement; Fig. 2 is a cross section on line 2—2 of Fig. 1; and Fig. 3 is a perspective view of the curved chute, which particularly embodies my invention.

Heretofore gold and ore, cereals, seeds and various other materials requiring to be separated have been delivered into a vertical spout from a connecting inclined spout whereby the materials acquired a considerable momentum in a downward direction, and the grains or particles composing such materials were held to a certain degree in close contact, and in consequence the current of air forced upward through the vertical spout or chamber failed to act on the materials in the most effective manner. I have found that by delivering the materials in a horizontal plane or directly across the vertical spout and therefore at right angles to the ascending air current, they are spread out in a thinner sheet so that the air current acts thereon more effectively, or in other words, forces upward and separates the lighter materials from the heavier in a more perfect manner than is practicable when the materials are discharged in a downward direction.

In carrying out my invention, I have provided the inclined spout at its junction with the vertical spout outside of the latter with a curved plate or chute A, as indicated in Fig. 1. The form of the plate or chute is more plainly indicated in Fig. 3, the upper portion thereof having a flange *a* which projects downward, and the lower end *a'* being curved upward to a slight degree. The flange *a* is adapted to enter a slot or socket *b* formed on the lower side of the spout B which connects with the vertical spout C. The spout D from the hopper E enters the aforesaid spout B and overlaps the upper edge of the plate or chute A. The spout D thus serves as a means for holding the plate A in place, although its own gravity and the friction of its flange *a* with the socket *b* may ordinarily suffice for this purpose. It will be seen that the grain or other material passing from the hopper E through the spout D is deflected by the curved lower end *a'* of the chute, so as to discharge into the vertical spout C in a horizontal direction or diametrically across the said spout. In other words, the grain or other material is discharged in a plane at right angles to the direction of the ascending air current received from the fan F, and the granular or other material composing the material just delivered into the spout C are spread out in a thin sheet and adapted to be acted upon by the air current in such manner as to separate the lighter from the heavier portions in the most thorough and effective manner, the lighter portions passing upward and the heavier descending into the spout C to a point of delivery *c*.

It will be noticed as a special feature of my invention that the chute A is entirely outside the vertical spout C, or in other words it does not project into the spout C, so that the latter is left entirely unobstructed, and allows a full, free, or unhindered air current therein.

When the plate or chute C is worn out or when it is desired to substitute another having a different curvature as may be required by different qualities and conditions of grain or other material to be separated, the substitution may be quickly and easily effected by simply raising the hopper, together with its spout D, and then lifting the plate so that its flange *a* is drawn out of the socket *b*. The latter may be formed by a downward bend in the spout B or in any other preferred manner, or by constructing it in a separate piece and attaching it to the spout.

What I claim is—

1. The combination, with the vertical air blast spout and the inclined grain spout connected with one side of the same, of the feed plate arranged wholly within said grain spout at its junction with the air spout and curved at its outer end to a horizontal plane and its free edge terminating flush, or in vertical alinement, with the adjacent vertical side of the air spout, as shown and described.

2. In a separator of the class indicated, the combination with a vertical air spout and an inclined spout connected therewith, and provided with a socket in its lower side, of a chute comprising a plate having its

lower end curved and its upper portion formed with a flange adapted to enter the said socket, substantially as described.

3. In a separator of the class indicated, the combination with a vertical spout and an inclined spout having a socket in the lower side, of a feed plate which is curved at its lower end and provided at its upper end with a flange adapted to enter said socket, and a hopper spout entering the said inclined spout and overlapping the upper edge of the feed plate, substantially as described.

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Witnesses:
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