No. 881,422. PATENTED MAR. 10, 1908.

M. LEONARD.

GRAIN SEPARATOR.

APPLICATION FILED DEC. 15, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

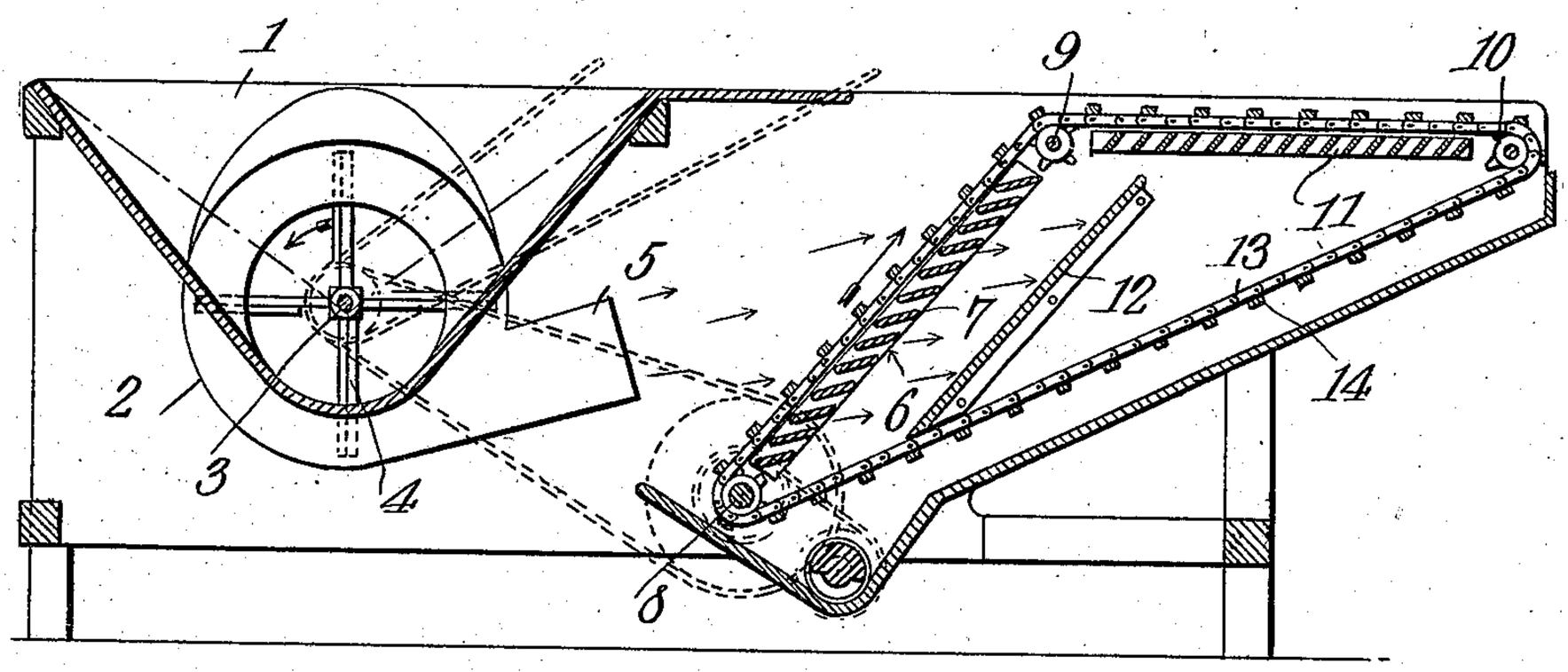


Fig. 2.

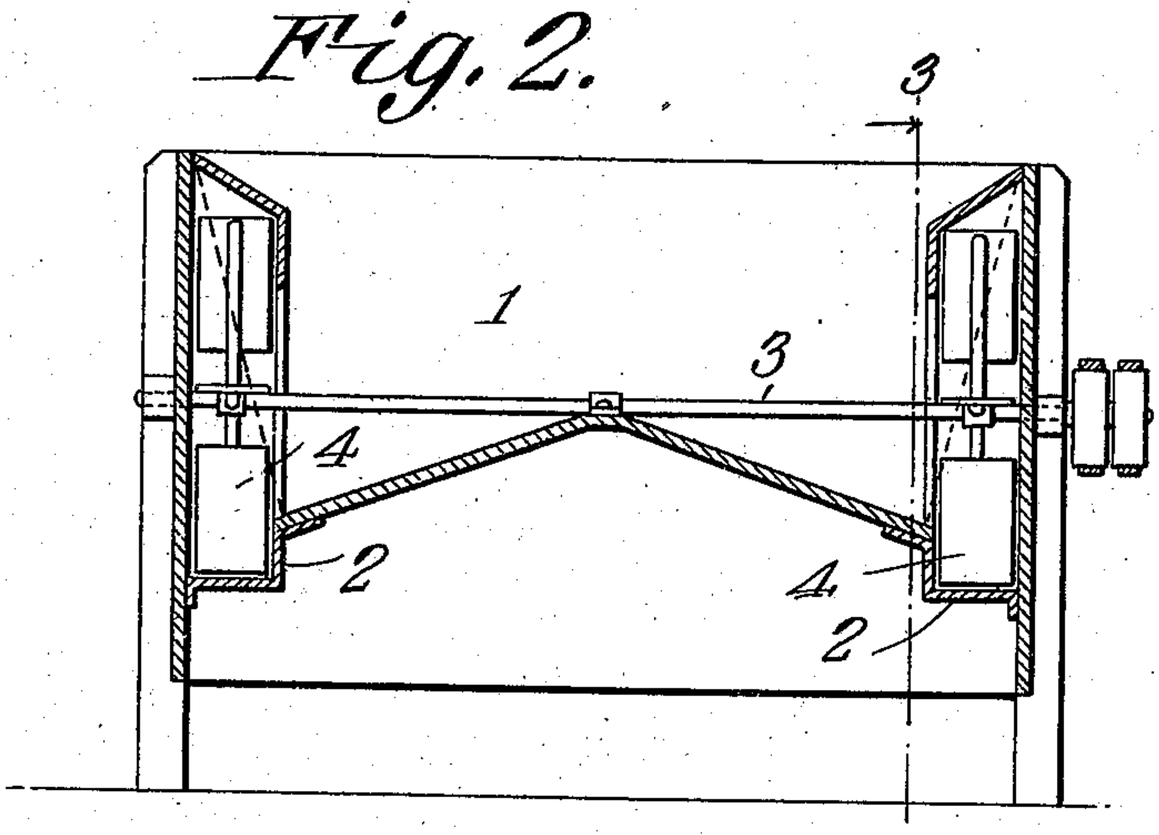
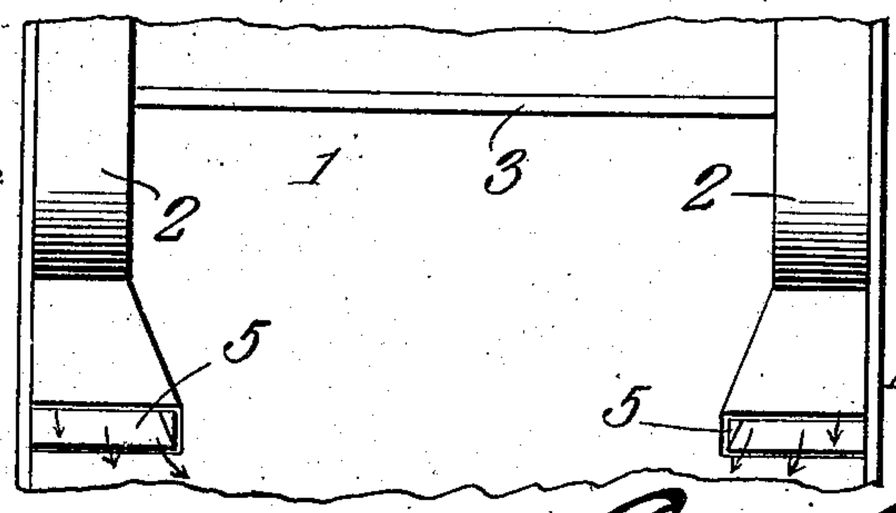


Fig. 3.



WITNESSES:

E. G. Stewart

C. Bradway

Marcus Leonard,
INVENTOR.

By Church & Co.
ATTORNEYS

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2 SHEETS—SHEET 2.

Fig. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

MARCUS LEONARD, OF SALINA, KANSAS.

GRAIN-SEPARATOR.

No. 881,422. Specification of Letters Patent. Patented March 10, 1908.

Application filed December 15, 1906. Serial No. 348,043.

To all whom it may concern:

Be it known that I, MARCUS LEONARD, a citizen of the United States, residing at Salina, in the county of Saline and State of Kansas, have invented a new and useful Grain-Separator, of which the following is a specification.

This invention has relation to grain separators or threshers for separating grain from straw, chaff, etc. and it consists in the novel construction and arrangement of its parts as hereinafter shown and described.

The object of the invention is to provide a separator of the character indicated which involves three forces to accomplish separation, namely, centrifugal force, compact and pneumatic force. The unseparated grain is first subjected to centrifugal force in suitable fan cases provided and is then thrown or expelled against a raddle which separates the straw from the granular material. The granular material passes through the raddle on to an incline baffle-plate and a pneumatic current passes over the grain while upon said plate and removes the chaff from the same while the grain descends along the plate and is recovered. A series of slats is kept in constant movement over the face of the raddle in order to keep the same free from accumulating material consequently, the face of the raddle is always clean and performs its function properly in separating the grain from the straw. At the same time the said slats carry the straw up and convey the same away from the apparatus.

In the accompanying drawing: Figure 1 is a vertical sectional view of the separator. Fig. 2 is a transverse sectional view of the same. Fig. 3 is a top plan view of discharge outlets of the fan casings. Fig. 4 is a side elevation of the separator.

The bottom of the hopper 1 communicates with the sides of the fan casings 2, 2. The shaft 3 extends transversely of the said casings 2, 2 and the fans 4, 4 are located upon the said shaft 3 and within the casings 2, 2. Each casing 2 is provided with a discharge outlet 5 which increases in transverse area toward its outer end. The raddle 6 is made up of a series of parallel slats 7 which extend substantially parallel with the longitudinal axis of the discharge outlet 5. The raddle 6 as an entirety is pitched at an acute angle to the longitudinal axis of the said discharge outlet 5. The roller 8 is journaled at the lower end of the raddle 6. The roller 9 is journaled at the upper end of said raddle while the roller 10 is at the same level as the roller 9 but located at the rear thereof and the slatted rack 11 extends back from the roller 9 and terminates in the vicinity of the roller 10. The inclined baffle plate 12 is located in the rear of the raddle 6 and its upper edge is spaced from the slatted rack 11. The chains 13 pass around the rollers 8, 9 and 10 and are connected together by the spaced slats 14. Any suitable means may be provided for rotating the shaft 3 and fans 4, also for operating the rollers 8, 9 and 10 and slats 14. As such means forms no part of this invention and are very common expedients in threshing machines it is deemed unnecessary to describe such means in this specification. The fans 4 are rotated in the direction as indicated by the arrow in the drawing while the slats 14 move from the roller 8 to the roller 9, thence to roller 10 and thence to roller 8 and so on. The unthreshed grain is fed into the hopper 1 and as the fans 4 are in motion the said grain is drawn down through the side openings in the fan casings 2 and into the said casings. While in the said casings the grain is beaten and by centrifugal force is violently thrown against the inner periphery of the casing and finally is expelled from the casing through the discharge outlet 5. The beating process above described loosens the grain in the pods and threshes some of the grain out of the pods. The material is then thrown violently against the raddle 6 by the blast from the fans 4. And the loose grain passes through the slats 7 and comes in contact with the baffle plate 12. The compact between the grain and raddle 6 will loosen up any grain that has not previously been loosened in the pods. Consequently all of the grain passes through the raddle 6 and is deposited upon the inclined baffle plate 23. Much chaff and fine matter will also follow the grain through the raddle 6 but this fine material is carried up by the blast of air from the discharge outlets 5 over the upper edge of the said plate 12 and is shunted by the slatted rack 11 under and through the slats 14. At the same time, the separated grain works down along the surface of the baffle plate 12 against the blast of air and is thoroughly cleaned when recovered at the lower edge of the said plate. Also the straw and coarser particles that strike the raddle 6 are carried up by the slats 14 over the roller 9 and over roller 10 and are

blown to the rear by the blast of air coming from under the slatted rack 11 and from which the said coarser particles have just previously been separated.

Having described my invention what I claim as new and desire to secure by Letters Patent is:—

A grain separator comprising a combined grain threshing and grain and air propelling fan, separating raddles lying in different planes and located opposite the fan, a deflector located in the angle between the raddles and spaced slats moving orbitally around the raddles and deflector.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

MARCUS LEONARD.

Witnesses:
A. B. ANDREEN,
J. R. GEIS.