

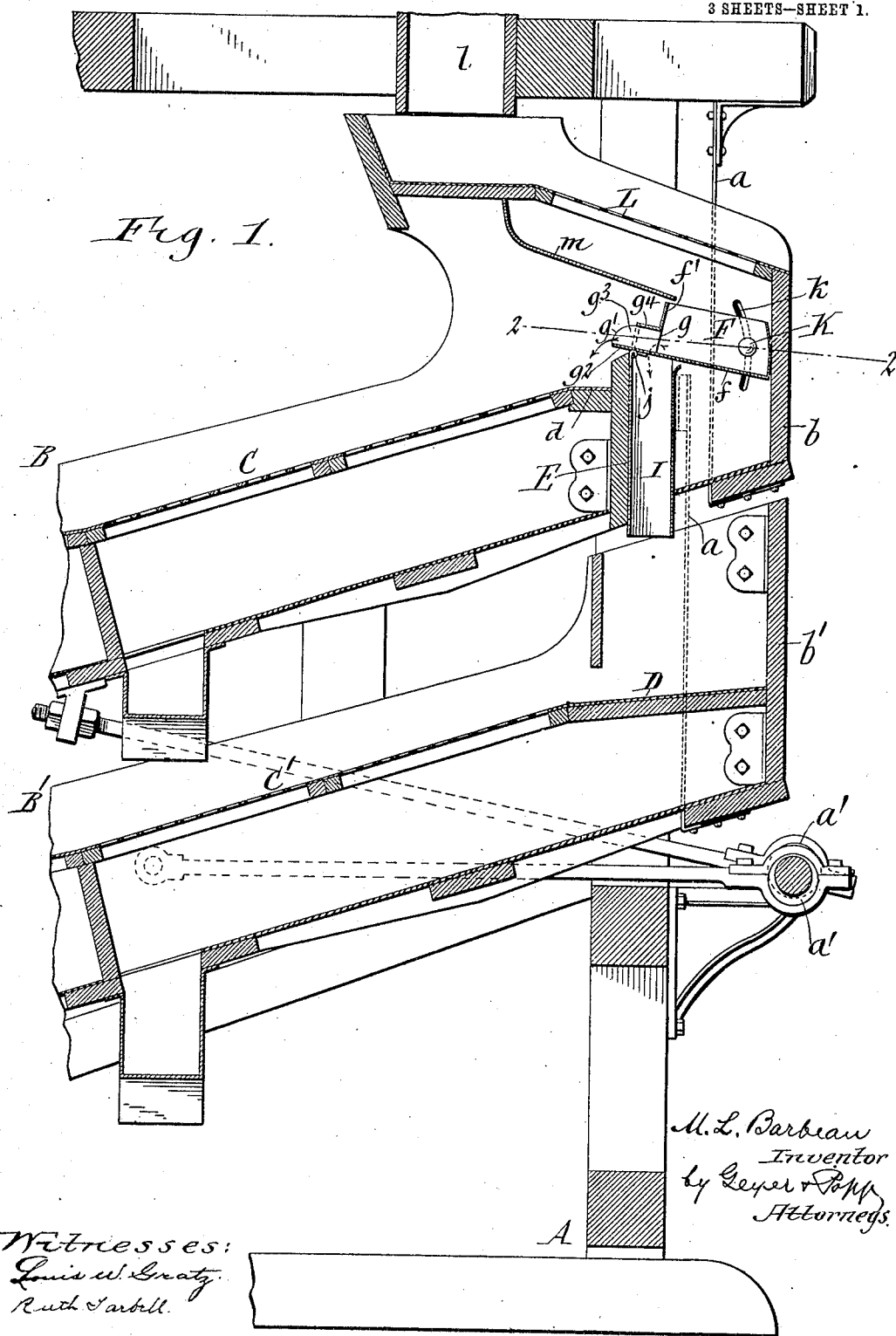
No. 852,050.

PATENTED APR. 30, 1907.

M. L. BARBEAU.
DISTRIBUTER FOR GRAIN SEPARATORS.

APPLICATION FILED MAR. 1, 1906.

3 SHEETS--SHEET 1.

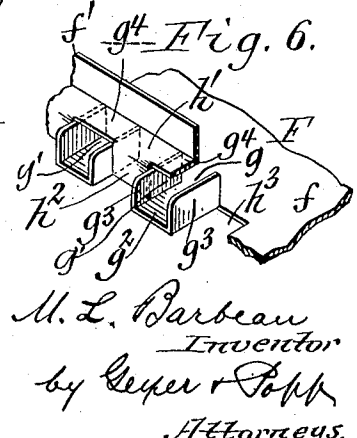
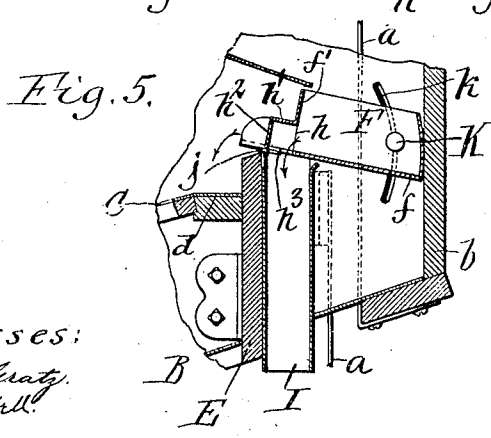
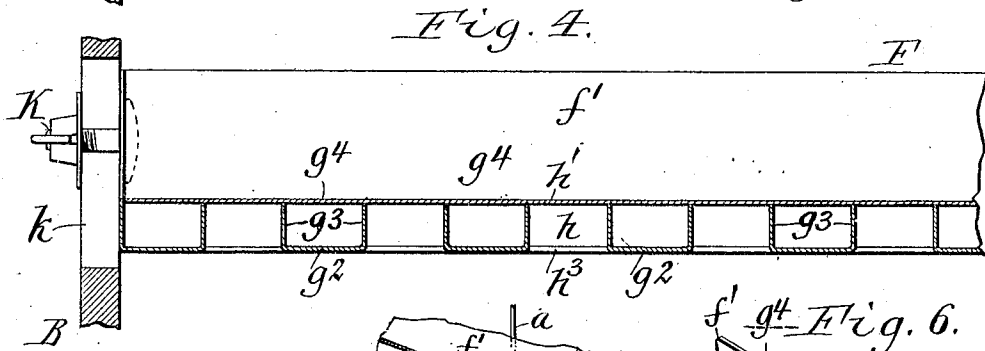
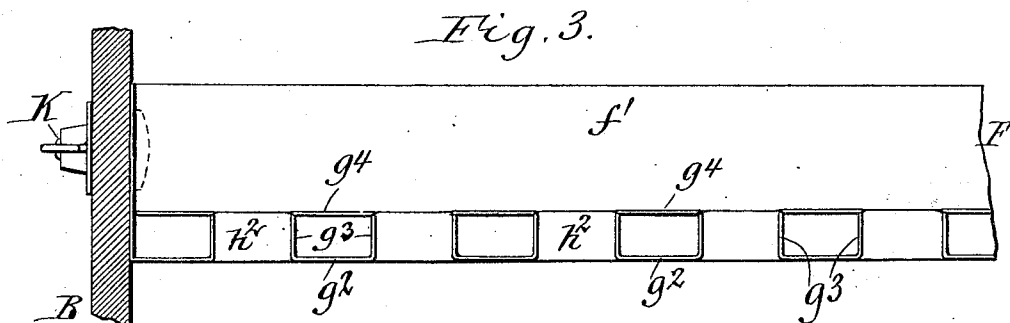
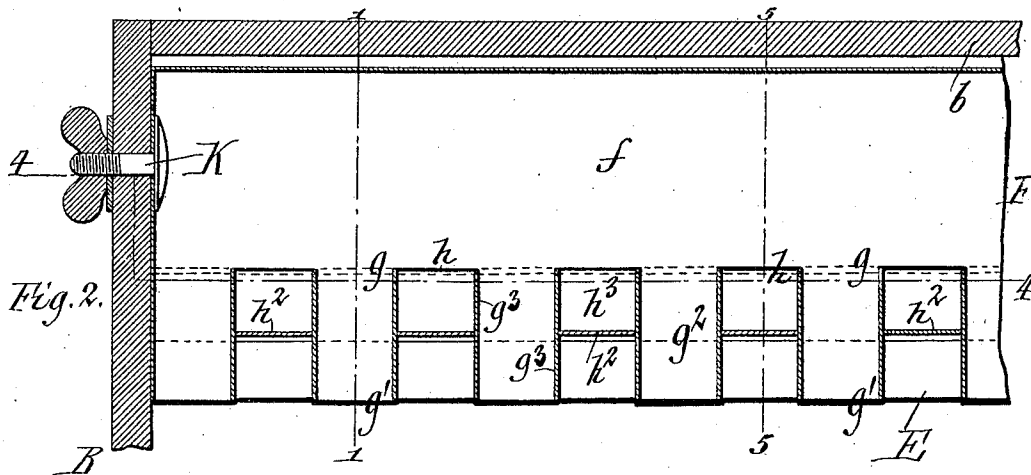


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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 7.

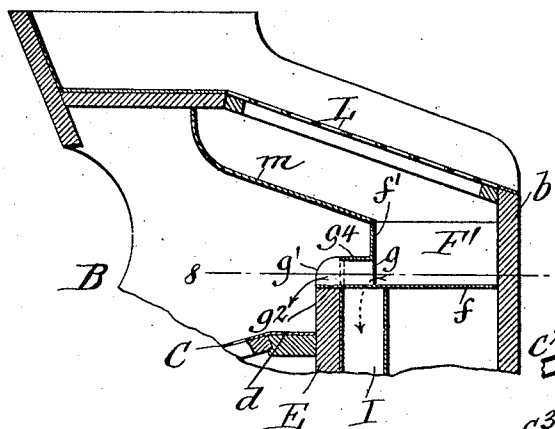


Fig. 9.

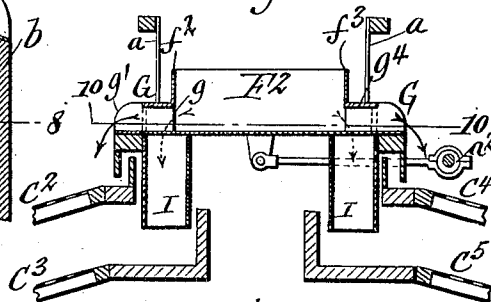


Fig. 8.

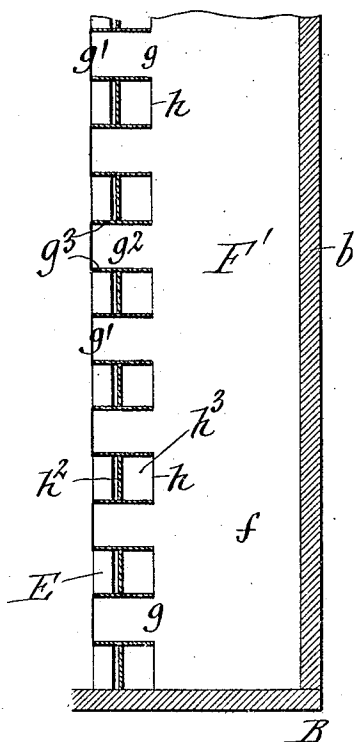
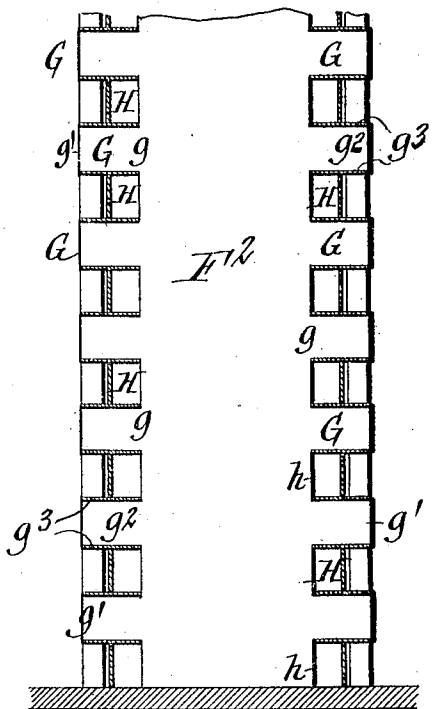


Fig. 10.



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UNITED STATES PATENT OFFICE.

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DISTRIBUTER FOR GRAIN-SEPARATORS.

No. 852,050.

Specification of Letters Patent.

Patented April 30, 1907.

Application filed March 1, 1906. Serial No. 303,659.

To all whom it may concern:

Be it known that I, MALCOLM L. BARBEAU, a subject of the King of England, residing at Silver Creek, in the county of Chautauqua and State of New York, have invented a new and useful Improvement in Distributers for Grain-Separators, of which the following is a specification.

This invention relates to a distributer for grain separating or grading machines.

In machines of this character two or more shaking shoes are usually mounted in the same frame for obtaining the desired capacity, which shoes are reciprocated in opposite directions so as to neutralize the jarring effect upon the machine and cause the same to run more steady and less noisy. Considerable difficulty has heretofore been experienced in supplying the screens of these shoes with an equal amount of grain from the same source which lack of uniformity caused not only unbalancing and racking of the machine but also produced a difference in the separating effect of the screens of the several shoes.

The object of this invention is the provision of a device which will distribute the grain from the same source to different separator screens with absolute uniformity or equality so as to avoid the above mentioned objections.

In the accompanying drawings consisting of three sheets: Figure 1 is a fragmentary vertical longitudinal section of a grain separator or grader equipped with my improved distributer the section of the latter part being taken in line 1—1, Fig. 2. Fig. 2 is a horizontal section on an enlarged scale, taken in line 2—2, Fig. 1. Fig. 3 is a fragmentary front elevation of the distributer and one of the side walls of the adjacent shoe in section. Fig. 4 is a vertical cross section in line 4—4, Fig. 2. Fig. 5 is a fragmentary vertical longitudinal section of the machine in line 5—5, Fig. 2, on the same scale as Fig. 1. Fig. 6 is a fragmentary perspective view of the distributer. Fig. 7 is a sectional view similar to Fig. 1 showing a modified construction of the distributer. Fig. 8 is a horizontal section in line 8—8, Fig. 7. Fig. 9 is a fragmentary sectional view showing the distributer organized for supplying two pairs of

screens. Fig. 10 is a horizontal section in line 10—10, Fig. 9.

Similar letters of reference indicate corresponding parts throughout the several views.

Referring to Figs. 1 to 5, A represents the main frame of the grain separator or grader which may be of any suitable construction to support the working parts of the machine.

B represents an upper shaking shoe and B' a lower shaking shoe arranged below the upper shoe. These shoes are so mounted and operated that the same are reciprocated horizontally in opposite directions. The means for thus supporting and operating these shoes may comprise flexible hangers *a* and rotary eccentrics *a'* such as are commonly used and well known for this purpose.

C, C' represent the screens which are mounted in a forwardly inclined position in the upper and lower shaking shoes. The rear walls *b*, *b'* of the upper and lower shoes are substantially in line and the rear end of the upper and lower screens are also arranged in the same relation or nearly so. The space between the rear end of the lower screen and the adjacent rear wall *b'* of the lower shoe is bridged by a feed board D. The grain which is to be separated by the screen of the lower shoe is deposited or dropped from above upon the feed board D and directed by the same forwardly over the lower screen.

E represents an upright partition or wall arranged transversely in the upper shoe between its rear wall *b* and the rear end of the upper screen. Between this partition and the rear end of the upper screen is arranged a comparatively narrow feed board *d*. The grain which is to be separated by the upper screen is delivered from above upon the feed board *d* and directed thereby forwardly over the upper screen. Between the partition E and the rear wall of the upper shoe is arranged the distributer which receives the grain and delivers the same in equal parts to the upper and lower screens and which is constructed as follows:

F represents a distributing box arranged between the upper end of the partition E and the rear wall of the upper shoe and having a closed bottom *f* and an open top through which the grain to be separated is

delivered into the distributing box. A plurality of long discharge spouts forming one set are arranged transversely side by side at the front side or wall f' of the distributing box and communicate at their rear ends with the box through openings g in said front wall while their front ends open forwardly, as shown at g' . Each of these spouts has a bottom g^2 forming a forward extension of the bottom of the distributing box, two upright side walls g^3 , g^3 arranged at the opposite longitudinal edges of the spout bottom and a top wall g^4 extending forwardly from the upper edge of the respective opening g and across the upper ends of the side walls g^3 . Between the long spouts the front wall f' of the distributing box is provided alternately with a plurality of discharge openings h . Top walls h' extend forwardly from the front wall f' of the distributing box at the upper edges of the openings h , and upright walls h^2 extend downwardly from the front ends of the top walls h' . The top and end walls h' , h^2 adjacent to each opening h bridge the space between the upright walls g^3 of the two adjacent long spouts and form with the latter a short discharge spout the outlet opening or hole h^3 of which is in the bottom thereof between the lower edge of its upright front wall h^2 and the front edge of the bottom of the distributing box. The latter is so arranged that the long discharge spouts are arranged above the upper end of the upright partition E and discharge the grain forwardly beyond the same and the front wall h^2 of the short spouts are arranged in rear of said partition so that the latter discharge the grain downwardly in rear of this partition. The tops g^4 and h' of the long and short spouts are preferably made continuous out of the same piece, as shown.

The area of the two sets of short and long spouts and the openings or spaces whereby the same communicate with the distributing box is the same. It follows from this construction that the stream of grain which flows from the distributing box through the long and short spouts is divided into two perfectly equal parts. One of these parts is directed by the long spouts upon the feed board of the upper screen and the other part is directed by the short spouts upon the feed board of the lower screen. A vertical chute I is preferably mounted on the upper shoe between the partition E and the rear wall thereof and has its upper end below the outlet ends of the short spouts while its lower end is arranged over the feed board of the lower screen. This chute serves to conduct and control the grain in its passage from the short spouts to the feed board of the lower screen and prevent scattering or irregular delivery of the same to the lower screen.

For the purpose of enabling the speed with which the grain moves from the distributing

box to its spouts to be regulated according to the character of the grain which is being separated or other conditions means are provided whereby the distributing box and its discharge spouts may be tilted more or less. The means for this purpose shown in the drawings consist in pivotally connecting the distributor on its under side at its front end by a hinge j with the upper end of the partition E so that the distributing box may be raised more or less at its rear end. As shown in Fig. 1, the rear end of the distributing box is arranged lower than its front end. In this position of the distributor the grain is compelled to move upwardly from its rear or receiving end to its front or discharge end whereby the delivery or feeding movement of the grain is retarded. If the rear end of the distributing box is raised above its front end the flow of the grain from the same will be accelerated. By this means the distributing box may be adjusted to bring its bottom at the desired angle which is best suited for distributing the particular kind or quality of the material which is to be separated. Any suitable means may be employed for holding the distributing box in its adjusted position, that shown in the drawings consisting of a thumb screw or bolt K secured to an end wall of the distributing box and passing through a segmental slot k in the adjacent side wall of the upper shoe.

As shown in the drawings means are provided for removing large particles, such as sticks and straw, from the grain before delivering the latter into the distributing box as is commonly done in machines of this character. This preliminary separator consists of a scalping screen L arranged on the upper part of the upper shaking shoe, a supply spout l mounted on the main frame and operating to deliver the mixed grain upon the head of the scalping screen and a chute m arranged upon the upper shoe underneath the scalping screen and operating to conduct the mixed grain which passes through the latter into the distributing box.

Instead of mounting the distributing box and its discharge spouts on the shaking shoe so as to be capable of adjustment at different angles, as shown in Fig. 1, the same may be secured in a fixed position on the upper shaking shoe, as shown in Figs. 7 and 8. When the last mentioned construction is employed the bottom of the distributing box F' and of the long discharge spouts are arranged horizontal or nearly so that the material is propelled from the rear to the front end of the same solely by the vibrations of the shaking shoe and without producing any retarding or accelerating effect on the movement of the grain.

In Figs. 9 and 10 is shown a construction of the distributing device in which two pairs of screens C^2 C^3 C^4 C^5 are supplied from a sin-

gle distributing box F². In this construction the elevated ends of the two pairs of screens are opposite each other and the upper screens C², C⁴, of both pairs are preferably reciprocated together and in the opposite direction of the lower screens C³, C⁵ of both pairs. The distributing box in such a construction is wide enough to accommodate sufficient grain for supplying four screens and is provided on both of its longitudinal sides or walls f², f³ with alternating long and short spouts G, H which are constructed and operate in the same manner as those heretofore described.

It is immaterial for the purpose of my invention whether the screens and distributor shake in any particular direction or whether the distributor moves with or independent of the screens.

In the constructions shown in Figs. 1 and 5 the screens reciprocate horizontally and the distributor moves with the upper screen.

In the construction shown in Fig. 9, the distributor is disconnected from the screens and may be shaken by any suitable means independent of the screens, for instance an eccentric a².

I claim as my invention:—

1. The combination of upper and lower separating screens, a distributing box arranged above said screens, a plurality of long discharge spouts leading laterally from a side wall of the box to the upper screen, and a plurality of short discharge spouts alternating with said long spouts and leading laterally from said side wall of the box to said lower screen, substantially as set forth.

2. The combination of an upper separating screen, a lower separating screen, means for reciprocating said screens in opposite directions, a distributing box, a plurality of long discharge spouts leading laterally from a side wall of said box to the upper screen, and a plurality of short discharge spouts alternating with the long spouts and leading laterally and downwardly from said side wall of the box to the lower screen, substantially as set forth.

3. The combination of a plurality of screens, a distributing box provided in its side wall with a plurality of long discharge spouts which communicate at their open rear ends with said box and lead with their open front ends to one of said screens and with a plurality of short discharge spouts which alternate with the long spouts and communicate at their open rear ends with the box while their open lower ends or bottoms lead to another screen, each of said long spouts having a bottom which forms an extension of the bottom of the box and two upright side walls which extend forwardly from the side wall of the box along opposite longitudinal edges of the bottom of the long spout, and each of said short spouts having a

top wall which extends forwardly between the side walls of the adjacent long spouts from the upper edge of the opening whereby the short spout communicates with the distributing box and a vertical front wall arranged between the side walls of the adjacent long spouts and extending downwardly from the front end of said top wall, substantially as set forth.

4. The combination of two shaking shoes arranged one above the other and each having a separating screen, and a grain distributor mounted on the upper shoe and comprising a distributing box having a plurality of long discharge spouts leading laterally from a side wall of the box to the screen of the upper shoe and a plurality of short discharge spouts alternating with said long spouts and leading laterally and downwardly from said side wall of the box to the screen of the lower shoe, substantially as set forth.

5. The combination of two shaking shoes arranged one above the other and each having a separating screen, and a grain distributor mounted on the upper shoe and comprising a distributing box having a plurality of long discharge spouts leading laterally from a side wall of the box to the screen of the upper shoe and a plurality of short discharge spouts alternating with said long spouts and leading laterally and downwardly from said side wall of the box to the screen of the lower shoe, and an upright partition arranged on the upper shoe between the outlets of the long spouts and the outlets of the short spouts, substantially as set forth.

6. The combination of two shaking shoes arranged one above the other and each having a separating screen and a grain distributor mounted on the upper shoe and comprising a distributing box having a plurality of long discharge spouts leading laterally from a side wall of the box to the screen of the upper shoe and a plurality of short discharge spouts alternating with said long spouts and leading laterally and downwardly from said side wall of the box to the screen of the lower shoe, an upright partition arranged on the upper shoe between the outlets of the long spouts and the outlets of the short spouts, and a vertical chute arranged on the upper shoe and leading from the outlet of the short spouts to the screen of the lower shoe, substantially as set forth.

7. The combination of a plurality of separating screens, a distributing box, a plurality of spouts arranged side by side in a row and delivering the grain from said box to said screens, said spouts being arranged in sets one of which sets of spouts delivers the grain to one of said screens while another set of said spouts delivers the grain to another screen and alternates with the first mentioned set of spouts, a vibrating shoe which supports said screens and distributing box,

and means for varying the inclination of said box relatively to said shoe, substantially as set forth.

8. The combination of two shaking shoes arranged one above the other and each having a separating screen, and a grain distributor mounted on the upper shoe and comprising a distributing box having a plurality of long discharge spouts leading laterally from a side wall of the box to the screen of the upper shoe and a plurality of short discharge spouts alternating with said long spouts and leading laterally and downwardly from said side wall of the box to the screen of the lower shoe, and means for tilting said distributor on said upper shoe, substantially as set forth.

9. The combination of two shaking shoes arranged one above the other and each having a separating screen, and a grain distributor mounted on the upper shoe and comprising a distributing box having a plurality

of long discharge spouts leading laterally from a side wall of the box to the screen of the upper shoe and a plurality of short discharge spouts alternating with said long spouts and leading laterally and downwardly from said side wall of the box to the screen of the lower shoe, an upright partition arranged on the upper shoe between the outlets of the long spouts and the outlets of the short spouts, and means for tilting said distributor comprising a hinge connecting the front part of the distributor with the upper end of said partition, and a clamping bolt arranged on the rear part of the distributor and passing through a slot in the upper shoe, substantially as set forth.

Witness my hand this 26th day of February, 1906.

MALCOLM L. BARBEAU.

Witnesses:—

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HOLLY M. HAWKINS.