

C. L. PALMER AND J. R. HOLLISTER.  
WILD PEA SEPARATOR.

APPLICATION FILED OCT. 22, 1921.

Patented May 9, 1922.

4 SHEETS—SHEET 1.

1,415,610.

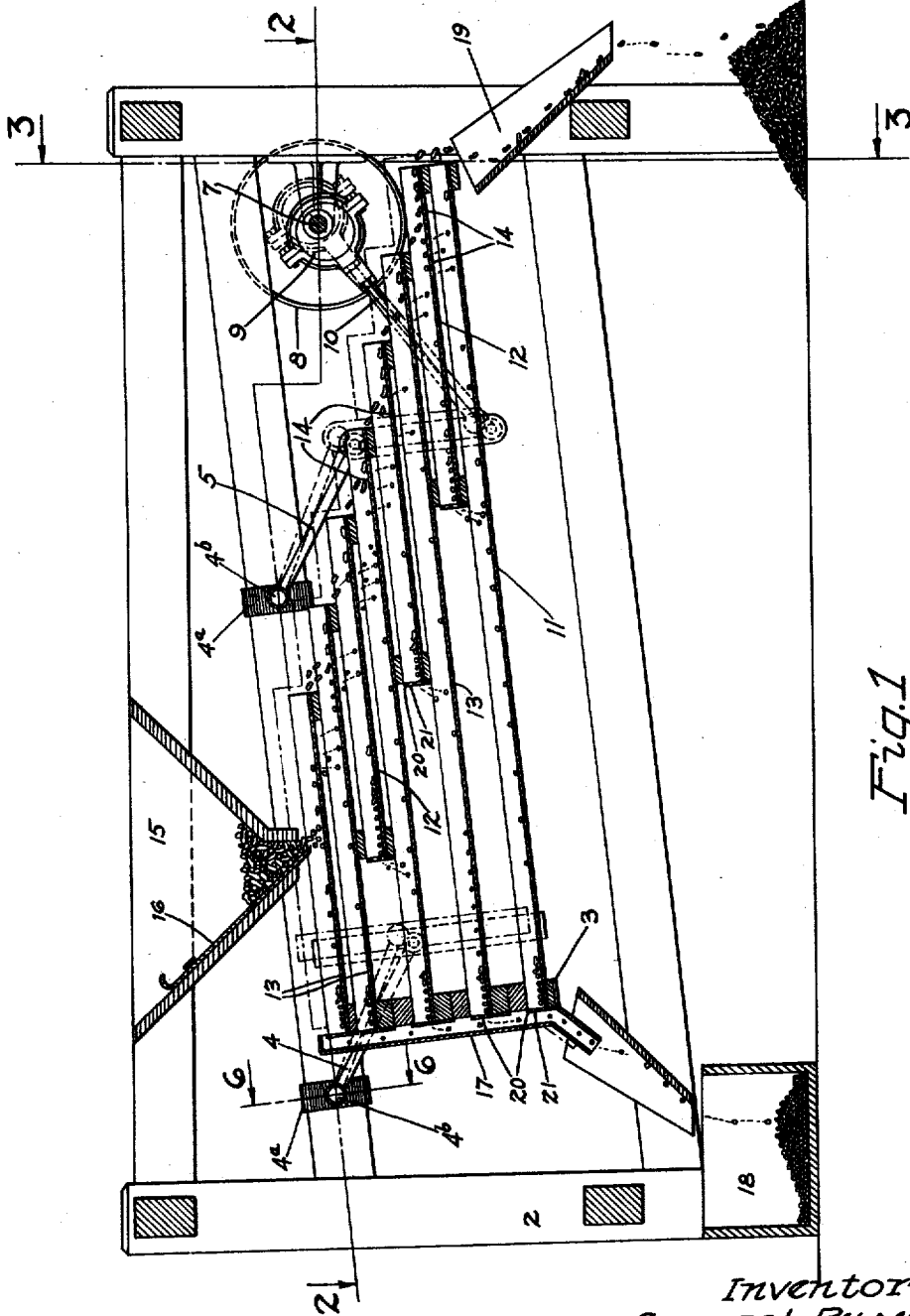


Fig. 1

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By Paul Paul  
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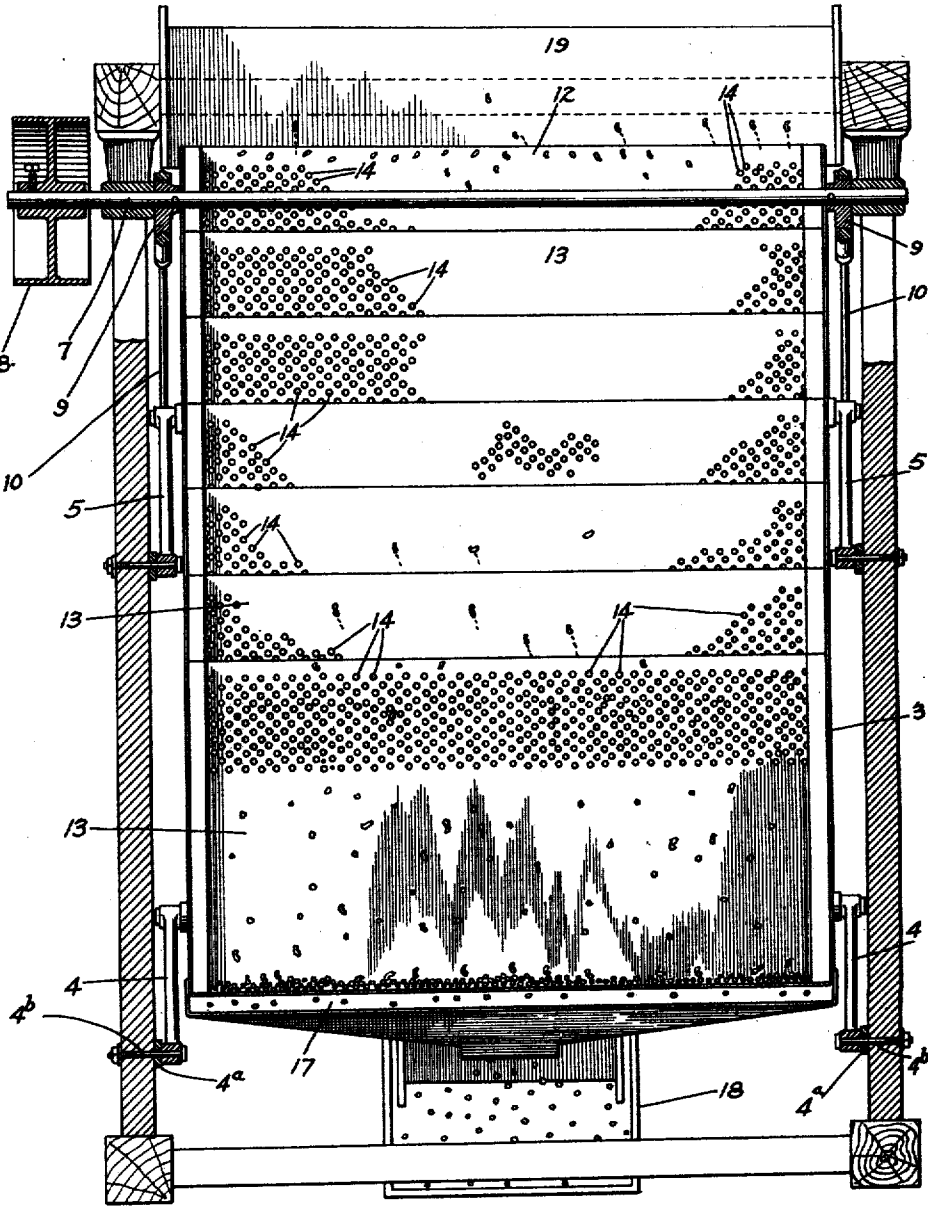


Fig. 2

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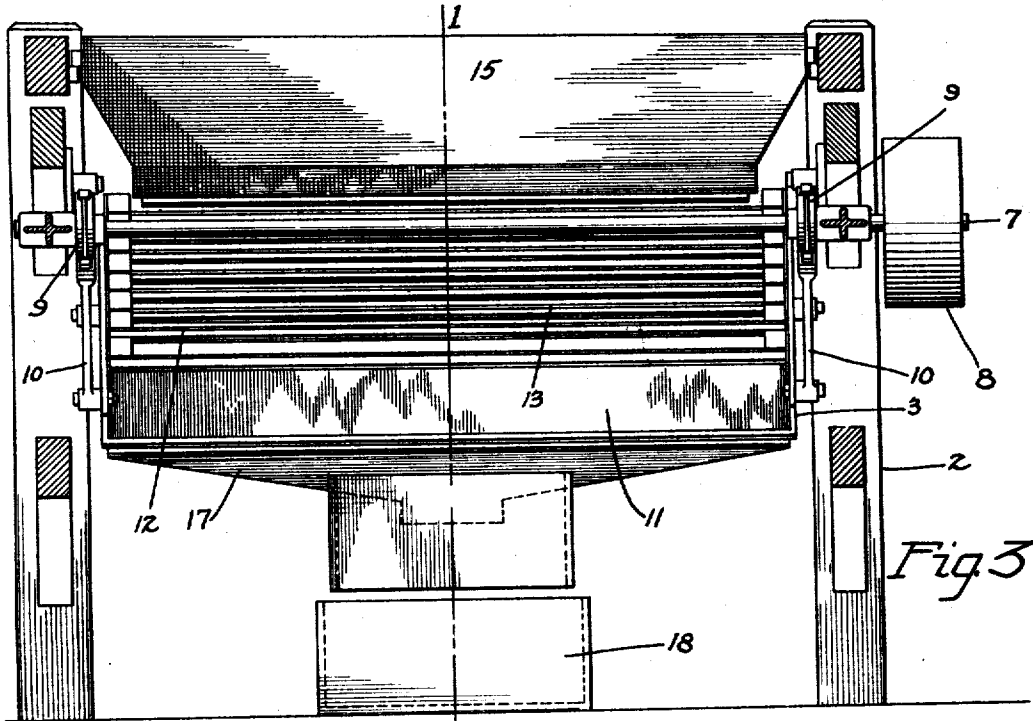
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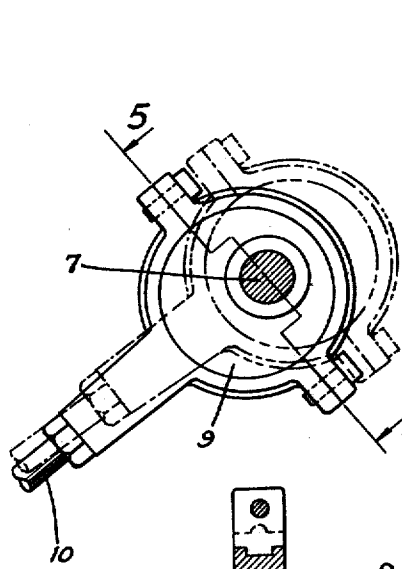
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4 SHEETS—SHEET 3.

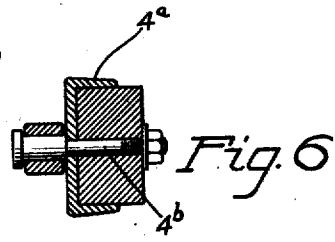
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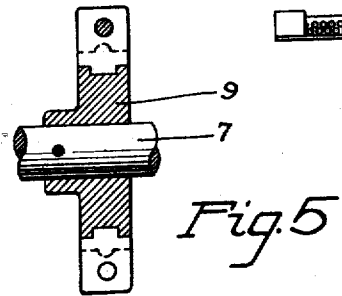
*Fig. 3*



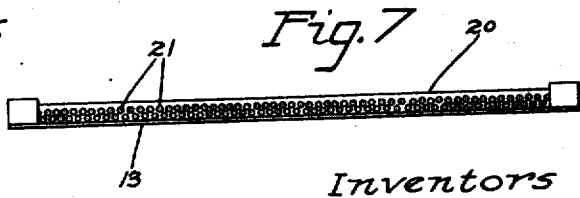
*Fig. 4*



*Fig. 6*



*Fig. 5*



*Fig. 7*

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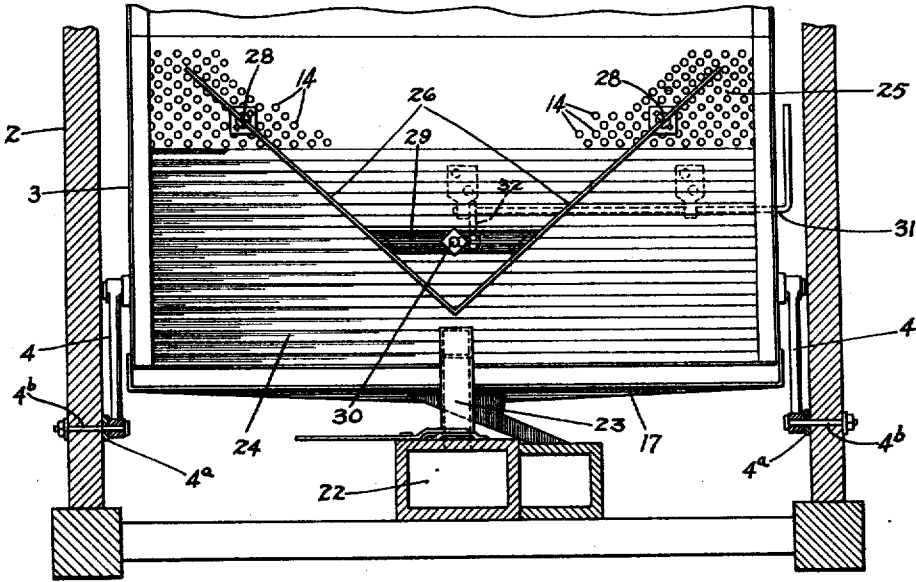


Fig. 8

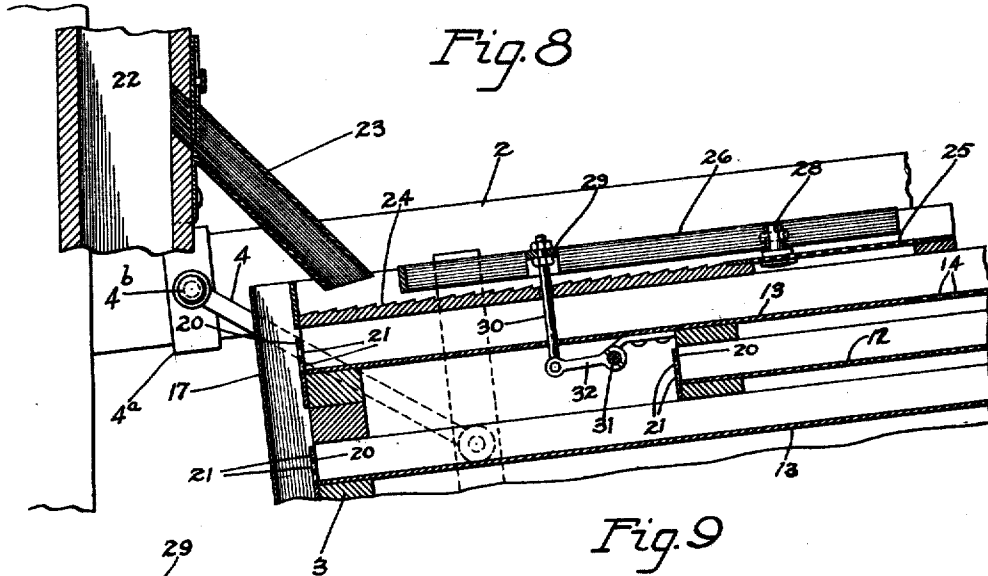


Fig. 9

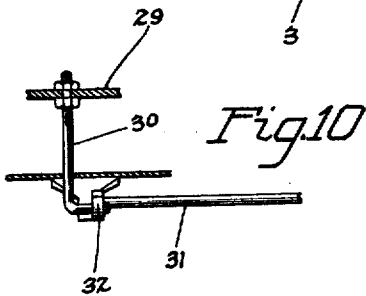


Fig. 10

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# UNITED STATES PATENT OFFICE.

CHARLES L. PALMER AND JOHN R. HOLLISTER, OF SLEEPY EYE, MINNESOTA,  
ASSIGNORS TO ROLLEMOUT MANUFACTURING COMPANY, OF SLEEPY EYE,  
MINNESOTA, A CORPORATION OF MINNESOTA.

## WILD-PEA SEPARATOR.

1,415,610.

Specification of Letters Patent.

Patented May 9, 1922.

Application filed October 22, 1921. Serial No. 509,522.

*To all whom it may concern:*

Be it known that we, CHARLES L. PALMER and JOHN R. HOLLISTER, citizens of the United States, and residents of Sleepy Eye, county of Brown, State of Minnesota, have invented certain new and useful Improvements in Wild-Pea Separators, of which the following is a specification.

The object of our invention is to simplify and improve the machine shown and described in Letters Patent of the United States, issued to us on the 15th day of February, 1921, No. 1,368,746.

A further object is to provide a machine of the class described of large capacity and one which can be economically manufactured and operated.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification,

Figure 1 is a vertical sectional view on the line 1—1 of Figure 3.

Figure 2 is a horizontal sectional view on the line 2—2 of Figure 1.

Figure 3 is a vertical sectional view on the line 3—3 of Figure 1.

Figure 4 is a detail view of the eccentric operating mechanism.

Figure 5 is a sectional view on the line 5—5 of Figure 4.

Figure 6 is a detail sectional view on the line 6—6 of Figure 1.

Figure 7 is a detail view of the kernel arrester.

Figure 8 is a horizontal sectional view showing a modification when the invention is adapted for a group or multiple of shoes.

Figure 9 is a longitudinal sectional view of the same.

Figure 10 is a detail view of the spreader adjusting mechanism.

In the drawing, 2 represents the frame of the machine. 3 is a shoe suspended at an incline in said frame by means of oscillating links 4 and 5. These links are preferably supported on the side rails of the frame by means of channel plates 4<sup>a</sup> and bolts 4<sup>b</sup> whereon the ends of the links 4 and 5 are pivoted. The links are attached to the frame 2 on different levels so that one end of the shoe is slightly higher than the other end.

A drive shaft 7 is mounted in bearings at one end of the machine frame and provided with a driving pulley 8 and with eccentrics 9 having straps connections 10 with the lower portion of the shoe on each side, so that when the shaft is revolved, an oscillating motion will be imparted to the shoe. In the shoe a lower imperforate plate 11 is provided, extending from end to end of the shoe. Above this imperforate plate are plates 12 and 13 alternating in position to the top of the shoe, the lower plate projecting in advance of the next upper one and the plates 12 being all shorter than the plates 13 and as the plates 12 are all grouped at the forward portion of the shoe, an unobstructed space is provided between the rear portions of the plates 13. Each of the plates 12 and 13 has groups of perforations 14 at the forward portion thereof extending across the shoe from side to side, the perforations of the lower plates being in advance of those above and each plate having an imperforate area in the rear of the perforated section. We prefer to make some of the separating plates shorter than the others, preferably the alternate plates, for economy of material and to reduce the weight of the shoe.

Above the upper plate is a hopper 15 provided with a slide 16 for regulating the delivery of grain upon the imperforate portion of the upper plate. At the rear of the shoe is a spout 17 adapted to receive the spherical seeds, such as wild peas, and direct them into a receptacle 18 beneath. In this machine, as in our former patent, advantage is taken of the difference in shape between wild peas and kernels of grain, such as wheat. When the grain containing wild peas is discharged from the hopper upon the upper plate of the shoe, the spherical wild peas will roll down the plate toward the lower discharge end thereof, while the motion of the shoe will cause the kernels of wheat to be fed toward the upper end of the shoe.

The perforate sections are arranged in stepped relation in the forward portion of the plates and when the mixture of peas and grain reaches one of these sections, a considerable quantity will fall through the perforations which have the function of spreading and thinning the material as it is discharged

upon the imperforate section of the plate next beneath. Some of the wheat kernels will pass forward over the perforations and over the forward end of the plate and from  
 5 thence drop upon the projecting end of the plate next beneath, but a considerable quantity of the grain will flow through the groups of perforations with the wild peas, and as the mixture strikes the plate next  
 10 beneath, a further separation of the peas and grain will take place, the grain being spread out from side to side of the plate in such a manner that the peas will be allowed to roll by gravity to the lower discharge end  
 15 of the plate, while the wheat, through the oscillation of the shoe, will again begin to climb the plate to the perforations therein. Some of the peas carried along will flow through the perforations of the second plate  
 20 and another separation will take place in the plate beneath and so on from the top to the bottom of the shoe, the perforations spreading the mixture throughout the full width of the shoe, a considerable quantity  
 25 of the peas being released while the grain is fed up to the perforations forming the initial separation, and a second separation taking place when the peas and grain fall through the perforations upon the imperforate section of the plate beneath.  
 30

The rear end of each plate is provided with a grain kernel arrester consisting of a narrow plate 20 having holes 21 therein through which the wild peas may be discharged. The collecting of the wild peas  
 35 in front of these arrester plates will serve to retard any of the grain kernels which may have approached these plates and the flow of the wild peas through the perforations in the plate will tend to turn the grain  
 40 kernels crosswise of the openings and prevent their discharge with the peas, and the continued oscillation of the shoe will work the grain upwardly on the plates toward the perforations therein.  
 45

This machine is adapted for a group or multiple of shoes, one arranged above the other, but where this construction is employed, it is hardly practicable for lack of  
 50 space to provide a hopper such as shown in Figure 1 between each adjacent shoe. We therefore arrange a feed chute 22, as shown in Figures 8 and 9, with a spout 23 leading therefrom for delivering the material upon  
 55 an imperforate plate 24, the steps or corrugations therein having the effect of feeding the material forwardly as the shoe oscillates, so that the mixture of peas and grain will be positively fed toward the upper end of the plate.  
 60 At the forward end of this plate a perforated section 25 is provided, through which the wild peas fall upon an imperforate plate beneath for delivery to a pea chute 17 at the rear end of the shoe. A spreader 26  
 65 is preferably provided in connection with

this form of delivery spout to aid in distributing the grain evenly across the plate. A bolt 28 pivotally connects the spreader with the perforate plate 25 on each side of  
 70 the machine. A bar 29 is interposed between the rails of the spreader near the apex thereof and a bolt 30 is connected with this bar 29 and is operated by means of a rod 31 having a crank connection 32 with the  
 75 lower end of the rod 30. By this means the end of the spreader may be raised or lowered to regulate the feed of grain beneath it.

The side rails operate to deflect the grain toward the sides of the separating plate and of course if the spreader is raised a considerable distance above the plate, the grain  
 80 will flow readily beneath it. The operator, noting the character of the feed, can easily and quickly adjust the spreader, causing the material to be evenly distributed from side  
 85 to side of the separating surfaces. In other respects the method of separation is substantially the same as shown and described with reference to the other figures.

In the operation of the machine, the mixture of wild peas and wheat is delivered  
 90 upon the upper plate of the shoe and spread out in a thin sheet from side to side. The spherical wild peas will begin to roll down over this plate, aided by the oscillating  
 95 movement of the shoe, which keeps the grain in motion and allows the spherical seeds to work through any body of grain which may tend to retard the movement of the peas toward the lower end of the plate. While this  
 100 gravity separation is taking place, the material is fed upwardly toward the perforated section of the plate and when this section is reached, the peas and a considerable  
 105 quantity of the grain will fall through the holes in a thin stream, extending from side to side of the plate, and drop upon the imperforate section of the plate beneath. Here the separation above described will be repeated while the grain is being fed upwardly  
 110 on the second plate to the perforated section thereof. Upon reaching this section, a considerable portion of the material will fall through and be spread out in a thin sheet on the plate beneath and this operation will  
 115 continue to the bottom of the shoe, each delivery of the material from one plate to another serving to spread out and thin the sheet of grain, so that the wild peas can become easily separated therefrom by gravity  
 120 and when the bottom of the shoe is reached, a practically complete separation will be made. By increasing the number of separating plates, the capacity of the machine may, of course, be greatly increased, and  
 125 there may be a number of shoes arranged one above the other in the same machine, all performing the same separating operation.

In various ways the details of construction herein shown and described may be 130

modified and still be within the scope of our invention.

While we have shown and described this machine as adapted for use in separating wild peas from grain, it will be understood that it may be utilized wherever a separation is to be made between elongated and spherical seeds or material.

We claim as our invention:

1. In a machine of the class described, a shoe mounted for oscillation and arranged at a slight backward incline and comprising plates arranged one above the other, the rear portions of said plates being imperforate and the forward portions thereof being perforate, the perforate sections of said plates being in stepped relation, means for delivering a mixture of wild peas and grain upon the upper plate of the series, some of the wild peas rolling by gravity to the lower end of said plate upon delivery thereto, the oscillation of said shoe moving the remaining wild peas and grain toward the upper portion of said plate and upon the perforated section thereof, the peas and a considerable quantity of the remaining grain passing through said perforations and falling upon an imperforate section of the plate next beneath, and said perforations having the function of thinning and spreading the mixture during such delivery, whereby a second separation by gravity of the peas and grain will take place on said plate beneath.

2. In a machine of the class described, a shoe mounted for oscillation and arranged at a slight backward incline and comprising plates arranged one above the other, the rear portions of said plates being imperforate and the forward portions thereof being perforate, the perforate sections of said plates being in stepped relation, means for delivering a mixture of wild peas and grain upon the upper plate of the series, some of the wild peas rolling by gravity to the lower end of said plate upon delivery thereto, the oscillation of said shoe moving the remaining wild peas and grain toward the upper portion of said plate and upon the perforated section thereof, the peas and a considerable quantity of the grain passing through said perforations and falling upon an imperforate section of the plate next beneath, and said perforations having the function of thinning and spreading the mixture during such delivery, whereby a second separation by gravity of the peas and grain will take place, some of the grain being carried forwardly over the perforations in said first named plate and being discharged over the forward end of said plate upon the plate next beneath.

3. In a machine of the class described, a shoe mounted for oscillation and arranged at a slight backward incline and comprising plates arranged one above the other, the

rear portions of said plates being imperforate and the forward portions thereof being perforate, the perforate sections of said plates being in stepped relation, means for delivering a mixture of wild peas and grain upon the upper plate of the series, some of the wild peas rolling by gravity to the lower end of said plate upon delivery thereto, the oscillation of said shoe moving the remaining wild peas and grain toward the upper portion of said plate and upon the perforated section thereof, the peas and a considerable quantity of the remaining grain passing through said perforations and falling upon an imperforate section of the plate next beneath, and said perforations having the function of thinning and spreading the mixture during such delivery, whereby a second separation by gravity of the peas and grain will take place, and perforated grain kernel arresters provided at the lower ends of said plates and having openings through which the wild peas may roll.

4. In a machine of the class described, a shoe mounted for oscillation and arranged at a slight backward incline and comprising a series of plates arranged one above the other, the rear portions of said plates being imperforate and the forward portions thereof being perforate, the perforate sections of said plates being in stepped relation, means for delivering a mixture of wild peas and grain upon the upper plate of the series, some of the wild peas rolling by gravity to the lower end of said plate upon delivery thereto, the oscillation of said shoe moving the remaining wild peas and grain toward the upper portion of said plate and upon the perforated section thereof, the peas and a considerable quantity of the remaining grain passing through said perforations and falling upon an imperforate section of the plate next beneath, and said perforations having the function of thinning and spreading the mixture during such delivery, whereby a second separation by gravity of the peas and grain will take place, and a grain spreader provided above the upper plate of the series and adapted to regulate the depth of the stream of grain and peas thereon.

5. In a machine of the class described, a shoe mounted for oscillation and arranged at a slight backward incline and comprising a series of plates arranged one above the other, the rear portions of said plates being imperforate and the forward portions thereof being perforate, the perforate sections of said plates being in stepped relation, means for delivering a mixture of wild peas and grain upon the upper plate of the series, some of the wild peas rolling by gravity to the lower end of said plate upon delivery thereto, the oscillation of said shoe moving the remaining wild peas and grain toward the upper portion of said plate and upon

the perforated section thereof, the peas and a considerable quantity of the remaining grain passing through said perforations and falling upon an imperforate section of the plate next beneath, and said perforations having the function of thinning and spreading the mixture during such delivery, whereby a second separation by gravity of the peas and grain will take place, and a grain spreader provided above the upper plate of the series and adapted to regulate the depth of the stream of grain and peas thereon, said spreader comprising a V-shaped frame pivotally supported and means for raising and lowering the bars of said frame with respect to the surface of said upper plate.

6. In a machine of the class described, a shoe mounted for oscillation and arranged at a slight backward incline and comprising a series of plates arranged one above the other, the rear portions of said plates being imperforate and the forward portions thereof being perforate, the perforate sections of said plates being in stepped relation, means for delivering a mixture of wild peas and grain upon the upper plate of the series, some of the wild peas rolling by gravity to the lower end of said plate upon delivery thereto, the oscillation of said shoe moving the remaining wild peas and grain toward the upper portion of said plate and upon the perforated section thereof, the peas and a considerable quantity of the remaining grain passing through said perforations and falling upon an imperforate section of the plate next beneath and repeating said separation upon successive plates, and said perforations having the function of thinning and sprinkling the mixture during such delivery, whereby a second separation by gravity of the peas and grain will take place, the alternate plates being shorter than the others, for the purpose specified.

7. In a wild pea separator, an oscillating shoe having a plurality of inclined plates mounted therein, one above the other, the forward ends of the upper plates being in the rear of the corresponding ends of the plates beneath, means for delivering the mixture of grain and wild peas upon the upper plate of the shoe, the movement of said shoe tending to feed the grain toward the upper end of the plate on which it lies while the wild peas separated therefrom roll by such movement by gravity to the lower end of said plate, and each plate having near its upper end means for delivering the mixture of grain and peas in a thin sheet upon the surface of the plate next beneath to continue the separation.

8. In a separator, an oscillating shoe having a plurality of inclined plates therein, one above the other, means for delivering a mixture of elongated and spherical seeds upon the upper plate of the shoe, the move-

ment of said shoe tending to feed the material toward the upper end of the plate on which it lies, while the spherical seeds, separated therefrom, roll to the lower end of said plate, and each plate having near its upper end means for delivering the mixture of elongated and spherical seeds in a thin sheet upon the surface of the plate next beneath to continue the separation.

9. In a separator, an oscillating shoe having a plurality of inclined plates therein, one above the other, means for delivering a mixture of elongated and spherical seeds upon the upper plate of said shoe, the movement of said shoe tending to feed the material toward the upper end of the plate on which it lies while the spherical seeds, separated from said material, roll by gravity to the lower end of said plate, and each plate having a perforate forward portion for delivering the elongated and spherical seeds in a thin sheet upon the surface of the plate next beneath to continue the separation.

10. In a separator, an oscillating shoe having a plurality of plates mounted therein, one above the other, means for delivering a mixture of elongated and spherical seeds upon the upper plate of said shoe, the movement of said shoe tending to feed the elongated seeds toward the upper end of said plate on which it lies, while the spherical seeds, separated therefrom, roll to the lower end of said plate, each plate having its upper portion provided with perforations for delivering the mixture of grain and peas in a thin sheet upon the surface of the plate next beneath to continue the separation, and a spreader provided above the upper plate of the series for regulating the depth of the stream of material thereon.

11. In a separator, an oscillating shoe having a plurality of inclined plates therein, one above the other, means for delivering a mixture of elongated and spherical seeds upon the upper plate of the shoe, the movement of said shoe tending to feed the elongated seeds toward the upper end of the plate on which it lies, while the spherical seeds roll to the lower end of said plate, each plate having means for delivering the mixture of elongated and spherical seeds in a thin sheet upon the surface of the plate next beneath, and perforated arresters for the elongated seeds provided at the lower ends of said plates and having openings through which the spherical seeds may roll.

12. In a separator, an oscillating shoe having a plurality of inclined plates therein, one above the other, means for delivering a mixture of elongated and spherical seeds upon the upper plate of said shoe, the movement of said shoe tending to feed the elongated seeds upon the upper end of the



plate while the spherical seeds separated therefrom roll to the lower end of said plate, each plate having means near its upper end for delivering the mixture of elongated and spherical seeds in a thin sheet upon the surface of the plate next beneath, and a grain spreader for regulating the depth of the stream of material, said spreader comprising a V-shaped frame having means for raising or lowering it.

13. In a separator, an inclined plate mounted for oscillation, means for delivering a mixture of elongated and spherical seeds upon said plate, the movement of said plate tending to feed the elongated seeds toward the upper end thereof, while the spherical seeds separated therefrom roll to the lower end, the upper portion of said

plate being perforate for receiving and delivering the mixture in a thin stream, and a plate below said first named plate arranged to receive the material therefrom.

14. In a separator, an inclined plate mounted for oscillation, means for delivering a mixture of elongated and spherical seeds upon said plate, the movement of said plate tending to feed the elongated seeds toward the upper end thereof while the spherical seeds, separated therefrom, roll to the lower end, the upper portion of said plate being perforate for receiving and delivering the mixture in a thin stream.

In witness whereof, we have hereunto set our hands this 14<sup>th</sup> day of October 1921.

CHARLES L. PALMER.  
JOHN R. HOLLISTER.