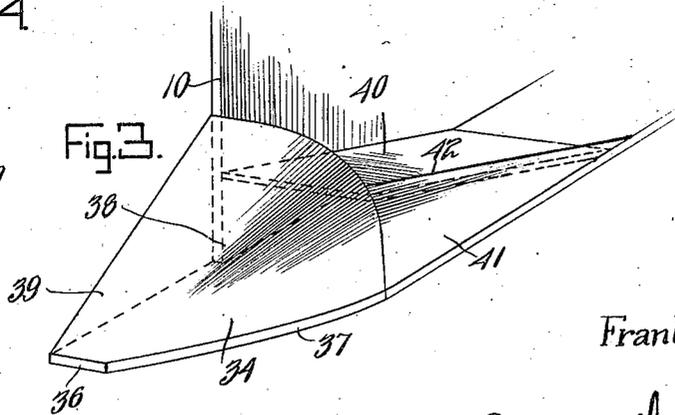
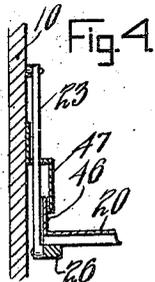
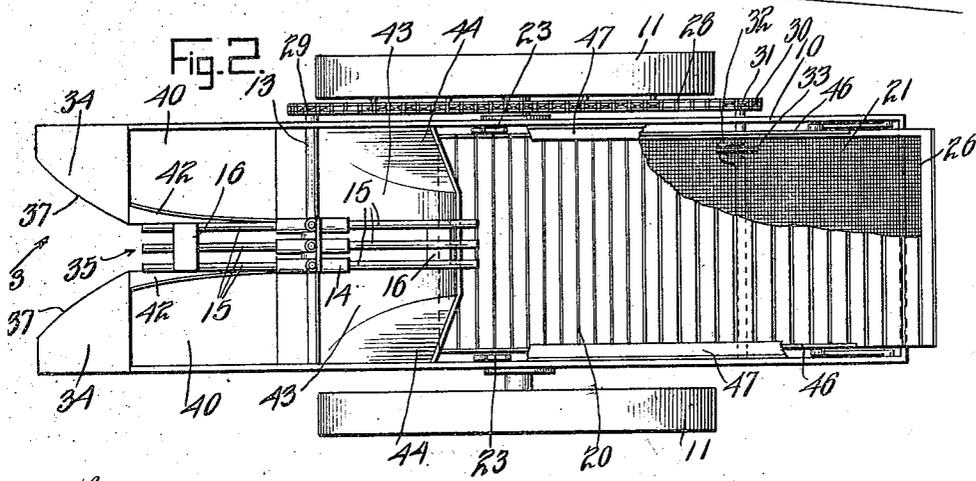
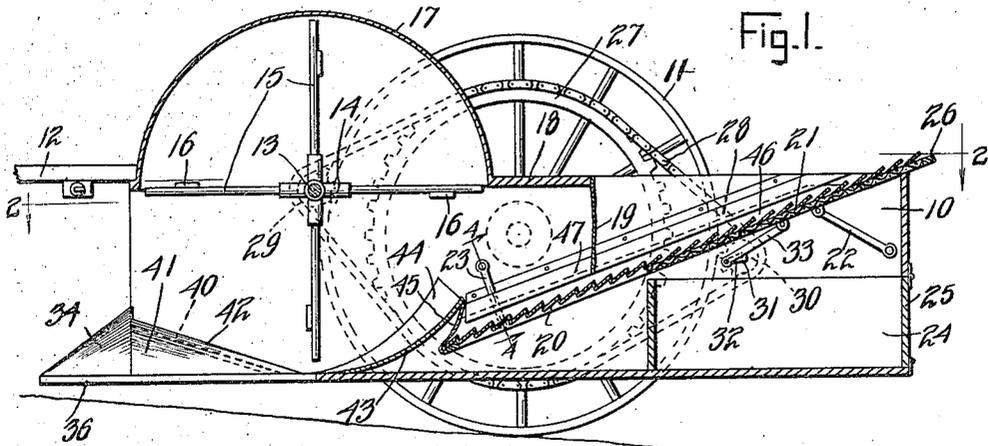


F. V. SCOTT.
 BEAN HARVESTER.
 APPLICATION FILED JAN. 2, 1920.

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FRANK VAUGHAN SCOTT, OF ELIZABETH CITY, NORTH CAROLINA.

BEAN HARVESTER.

Application filed January 2, 1920. Serial No. 348,728.

To all whom it may concern:

Be it known that I, FRANK V. SCOTT, a citizen of the United States, residing at Elizabeth City, in the county of Pasquotank and State of North Carolina, have invented certain new and useful Improvements in Bean Harvesters, of which the following is a specification.

This invention relates to bean harvesters, and has for an object to provide a device embodying new and improved elements, units, features, and combinations of utility, reliability and economy of operation.

Referring to the accompanying drawing, which is made a part hereof, and on which similar reference characters indicate similar parts,

Figure 1 is a view of the device in longitudinal vertical section,

Figure 2 is a view in horizontal section taken on line 2-2 of Figure 1,

Figure 3 is a detail enlarged perspective view of one of the guides as indicated by arrow 3 on Figure 2, and

Figure 4 is a sectional view taken on line 4-4 of Figure 1.

The improved bean harvester, which forms the subject matter of this application, comprises a body or housing 10 mounted upon traction wheels 11, with means for applying draft thereto indicated at 12.

Within the housing 10, a shaft 13 is journaled carrying a beater preferably made up of a plurality of units, each comprising a hub 14, with a plurality of arms 15, extending radially therefrom here shown as four in number, it being understood however that the number comprehended within the present invention is not limited in such manner. Several beater units, if used specifically as shown, are organized into a single beater by being mounted upon the said shaft. In the drawing three of the units are shown joined together by cleats 16. It is obvious that any number of such units may be employed as may be found necessary or convenient. The shaft 13 is journaled near the top of the housing 10 and an arcuate hood is erected over that portion of the beater extending above the housing. At the rear of the hood 17 a deck 18 is provided, having secured to the rearward edge thereof, a downwardly extending apron 19 unattached at its lower edge.

Beneath the apron 19 a combination screen agitator and conveyor is mounted, compris-

ing an agitator section 20 and screen section 21. The agitator and screen are preferably mounted in the same frame and the same plane, although the exact features of mountings are immaterial to the present invention. Also the unitary structure is mounted to oscillate in any approved manner as by pivoting upon links 22 and 23. The agitator section 20 and screen section 21, as will be noted, are the stepped or saw-toothed construction whereby the material dumped thereon from the beater is agitated and moved upwardly and rearwardly as the unit is oscillated until the material is passed to the screen portion 21, whereupon the beans, threshed and dislodged from the cases, stalks and stems, will fall through into the bin 24 adapted to discharge the contents in any approved manner as by the manipulation of the door 25. The upper and rearward end of the agitator-conveyor-screen unit extends rearwardly over the body 10 as at 26, so that the stalks, stems and other extraneous matter is dumped from the rear end of the body onto the ground.

For the purpose of driving the beater and oscillating the agitator-screen, power is taken from one or both of the traction wheels 11 in any approved manner. As here shown a sprocket collar 27 is secured to the spokes of one of the wheels and carries a sprocket chain 28 passing about a sprocket 29 upon the shaft 13 and about a sprocket 30 upon a shaft 31. The shaft 31 is journaled to rotate in the housing 10 and is provided with an offset crank portion 32 connecting with the link 33, whereby when the shaft 31 is driven, the agitator-screen unit will be oscillated upon the links 22 and 23.

To guide the standing stalks into position to be acted upon by the beater, guides 34 are employed spaced apart by an interval indicated at 35, so that the standing stalks are by the guides 34 introduced into the interval 35 into position to be acted upon by the beater. The guides 34 are of new and novel shape, having their lower planes 36 substantially horizontal but their proximate edges curved as indicated at 37. Above this base a curved member 38 is employed having a substantially plane portion 39 (see Figure 3), the remaining portion of said member being conoidal. At the rear of the member 38, a plate 40 is provided with a V-shaped plate 41 extending above the plate

40 and curved to correspond to the curvature of the member 38, with an edge 42 extending above the plate 40. It will be noted especially from Figures 2 and 3 that this edge 42 is rolled inwardly and tapered above the plate 40. At the rear of the plate 40 a guide 43 is provided having its edges turned upwardly as indicated at 44. Between the upturned edges 44 and the rolled edges 42 a trough-like space is provided for the rotation of the beater, so that the materials, dislodged by the beater when thrown upon the bottom of the housing, will be thrown against either the plates 40 or 43 and by the rotation of the beater, either through interposition of material moved thereby or by air currents created by such rotation, will be thrown rearwardly against the apron 19 and dropped upon the conveyor portion 20 of the conveyor-screen.

The apron 19 performs not only the function of limiting the trajectory of the material from the beater, but also by bearing upon the top of the material upon the agitator-screen surface to hold the material in more intimate relation with such unit and by maintaining the material in a mass or sheet to facilitate the movement of the entire mass somewhat as a unit along the surface of the agitator-screen impelled by the action of the beater in the rear and the stepped slats extending across the unit.

To prevent the material acted upon from falling between the plate 43 and the agitator 20, a flexible section 45 composed of fabric or the like is attached to the rear of the plate 44 and to the lower edge of the agitator as indicated more particularly at Figure 1.

Also to prevent the material from passing over the edges of the agitator-screen unit, such unit is provided upon opposite edges with an upstanding flange 46 and a shield 47 is attached to the inner surface of the housing 10 and extends over the flange 46 forming a slip joint between such members permitting the oscillation and reciprocation of the agitator-screen unit.

It is obvious that in operation as the device is driven along a row of standing peas, beans or the like with the traction wheels 11 spaced substantially equally distant upon opposite sides of the row, the standing plants will be guided by the guides 34 into the opening 35 where they will be violently beaten by the beater which in its rotation will tear and cut the stalks and stems, carrying such severed stalks and stems with it in its rotation, and at the same time by concussion, opening the pods, discharging the beans or peas therefrom. The beans or peas when discharged from the pods, in their ripened state or when in condition for harvesting, nevertheless, still are commingled with the pods. The stalks and the

stems will be thrown upon the agitator-section 20 which will agitate the commingled mass, which is held evenly but yieldingly by the apron 19 and by reason of the shape and greater specific gravity of the peas or beans, will cause the said peas or beans to seek the lower level in engagement with the conveyor while the stalks and stems and lighter materials will occupy a position above. In this relation the materials are forced on to the screen portion by the pressure behind, the agitation and the force of the unit, and the peas or beans promptly discharged through such screen into the bin 24. The continual addition of material from the agitator 20 to the screen will cause the material thereon to be moved upwardly and rearwardly and after sufficient agitation, to discharge through the screen all of the beans or peas, will dump the stalks, stems and the like over the rear end of the screen at 26 on to the ground.

Especial emphasis is placed on the formation of the bottom of the forward end of the body comprising the plates 40 and 43 with the upturned flanges 42 and 44. These members form a trough-like passage through the forward end of the body tending to continually move any contained material into the path of action of the beater to complete the opening of any unopened pods to discharge the beans or peas and also to bring the material in such position that the rotation of the agitator will engage against the material and throw it rearwardly upon the agitator section 20 against the apron 19. As has been pointed out, the apron 19 performs the function of limiting the movement of the material thrown from the beater so that it is not thrown over the rear end of the body, but it also performs another and perhaps even more important function in that it holds the material yieldingly upon the agitator and screen section whereby it is subjected more thoroughly to the agitation and is advanced to the discharge end of the screen section by the continued agitation and the saw-tooth formation of the unit.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent, is:

1. A bean harvester comprising a body having a centrally disposed longitudinal opening in its bottom, traction wheels supporting the body, a beater journaled within the body positioned to operate adjacent the longitudinal opening, an agitator-screen mounted within the body and adapted to maintain therewith an inclination, means for driving the beater and oscillating the agitator-screen comprising a sprocket on a traction wheel, sprockets on the shafts of the beater and the agitator-screen and a chain engaging all the sprockets, and means

to guide material from the beater on to the agitator.

2. A bean harvester comprising a body having a central longitudinal opening in its forward end, traction wheels supporting the body, a beater journaled to rotate within the body adjacent the longitudinal opening, an agitator-screen mounted to maintain an inclination with the horizontal and adapted to oscillate adjacent the beater, means to simultaneously actuate the beater and agitator-screen, comprising a traction wheel carrying a driving element, a shaft connected to the agitator screen carrying a driven element, a driven element on the shaft of the beater, flexible means connecting the driving element and the two driven elements to drive the latter, and guides formed at the forward end of the body adjacent the longitudinal opening and provided with conoidal shaped upper surfaces.

3. A bean harvester comprising a body having a central longitudinal opening in the bottom at the forward end, wheels supporting the body, a beater mounted to rotate within the body adjacent to the longitudinal opening, a plate disposed at the rear of the beater having its edges turned upwardly to form a trough-like channel for the passage of the beater, a separating element mounted in the rear of the beater and in position to receive material from the plate, and an apron positioned to limit the movement of material upon the separating element.

4. A bean harvester comprising a body having a longitudinally disposed slot in the bottom at the forward end, a beater journaled in the body above the longitudinal slot, an oscillating separator disposed in the rear of the beater and adapted to maintain an inclination to the horizontal, guides formed upon the proximate edges of the slot and having their upper surfaces conoidal-shaped, and plates in the rear of the guides having flanges extending above the plane of the plates.

5. A bean harvester comprising a body having a slot formed in the bottom of the forward end, mechanically operated beating and separating elements disposed within the body in operative relation to the slot, guides formed upon the forward end of the body with the lower edges engaging the proximate edges of the slot and the upper surfaces of conoidal formation, plates disposed in the rear of the conoidal guides, and guard members forming a continuation of the inner surfaces of the guides with their upper edges rolled inwardly over the plates.

6. In a bean harvester, a body having a portion of its upper surface open, a beating member mounted within the housing, a separating member disposed upon an inclined plane in the rear and to receive material

from the beating element and with its upper and rearward end extending and adapted to discharge over the rear of the body, and means to oscillate the separating member and a housing extending over the beating member and comprising an apron depending therefrom near the supporting member, said apron serving to limit the distance to which material can be thrown by the beating member.

7. In a bean harvester a housing, an inclined agitator-conveyor, a beater positioned to discharge material upon the agitator-conveyor, and an apron positioned to bear upon material upon the agitator-conveyor.

8. In a bean harvester a housing, an agitator-conveyor set at an inclination to the plane of the housing, an apron hung from a support above and extending nearly into engagement with the agitator-conveyor, and a beater positioned to throw material upon the agitator-conveyor and into engagement with the apron.

9. In a bean harvester, a housing, an inclined agitator-conveyor, a beater positioned to discharge material upon said agitator-conveyor, and flexible means arranged to bear upon the material upon the agitator-conveyor.

10. A bean harvester comprising a casing, an agitator-conveyor in said casing, a beater also in said casing and positioned to discharge material upon said agitator-conveyor, and means yieldingly supported arranged to bear upon the material carried upon said agitator-conveyor, substantially as set forth.

11. A bean harvester comprising a casing, a beater positioned in the front portion of said casing, an agitator-conveyor positioned behind said beater, means for directing the material from said beater upon said agitator-conveyor, and means yieldingly supported above said agitator-conveyor and adapted to bear upon the material in its passage thereover, substantially as set forth.

12. A bean harvester comprising a body having a pair of supporting wheels, a beater in front of said wheels, an agitator-screen in the rear thereof, a shaft adjacent to the screen for driving it, a sprocket carried by one of the supporting wheels, sprockets carried by the beater shaft and the agitator-screen shaft, respectively, and a single sprocket chain mounted to engage said several sprockets whereby the beater and the agitator-screen are driven by a common driving means connected with the supporting wheels, substantially as set forth.

13. A bean harvester comprising a casing, an agitator-conveyor in said casing, means for imparting to said conveyor a reciprocating movement and separate means for imparting to its rear end a vertical movement, a beater positioned in front of said agitator-

conveyor and adapted to throw the bean
 vines on to said conveyor, means for operat-
 ing said beater, and an inclined plate ex-
 tending upwardly toward the front of the
 5 machine from a position approximately be-
 neath the axis of the beater, substantially
 as set forth.

14. A bean harvester comprising a casing,
 an agitator-conveyor in said casing, a beater
 10 also in said casing and positioned to dis-
 charge material upon said agitator-conveyor,
 means for operating said conveyor and said
 beater, and an inclined plate extending up-
 wardly from a point approximately be-

neath the axis of the beater toward the 15
 front of the machine and another incline
 extending downwardly to the front of the
 machine and adapted to guide the material
 upon said first mentioned incline, substanti-
 ally as set forth. 20

In witness whereof, I have hereunto set
 my hand and seal at Elizabeth City, N. C.
 this 24th day of December, A. D. nineteen
 hundred and nineteen.

FRANK VAUGHAN SCOTT.

Witnesses:

GEO. J. SPENCER,
 R. L. KENDRICK.