July 10, 1928.

1,676,519

C. W. CARTER

DOCKAGE TESTER

Filed Jan. 25, 1926

2 Sheets-Sheet 1

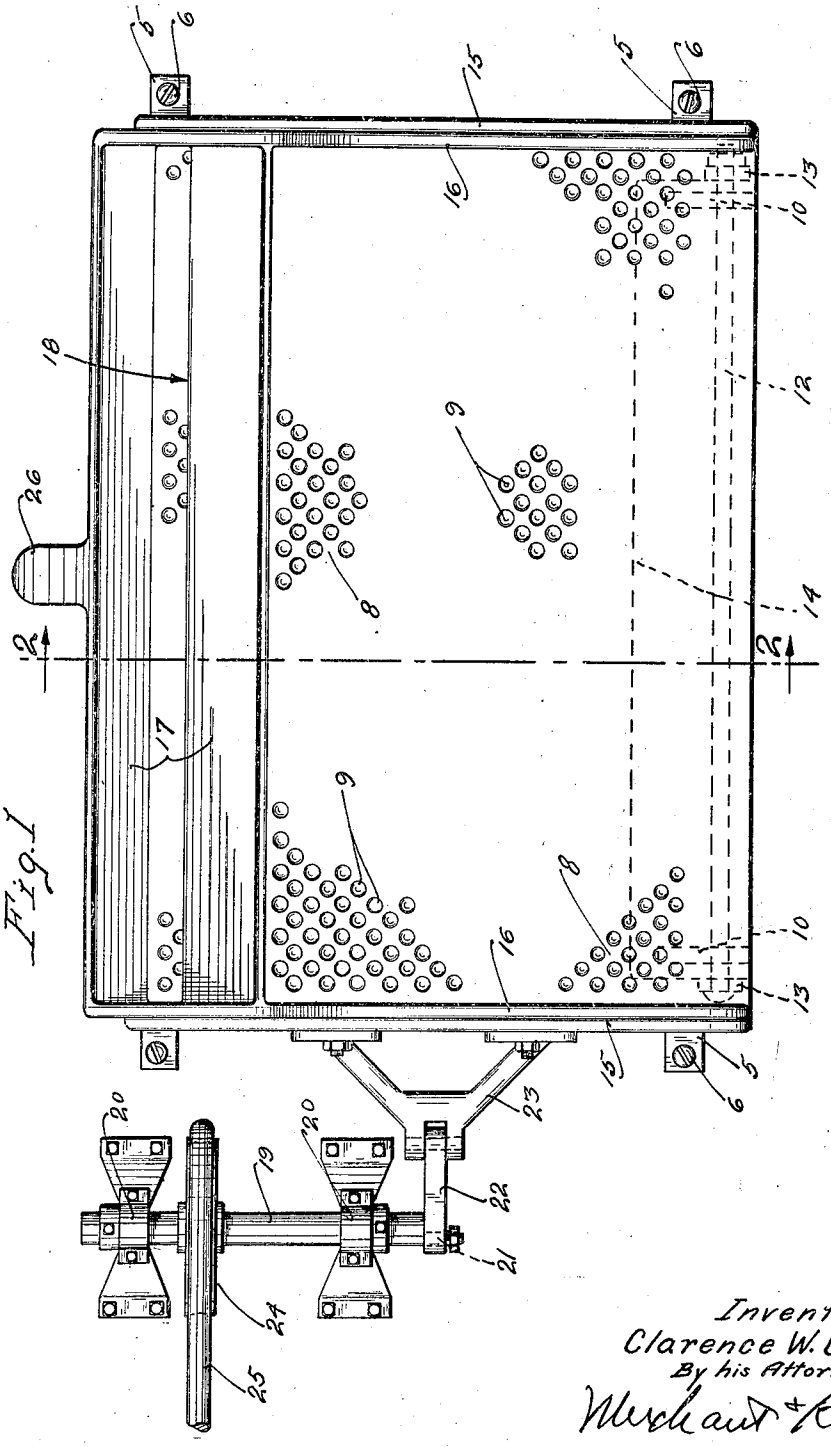


Fig. 1

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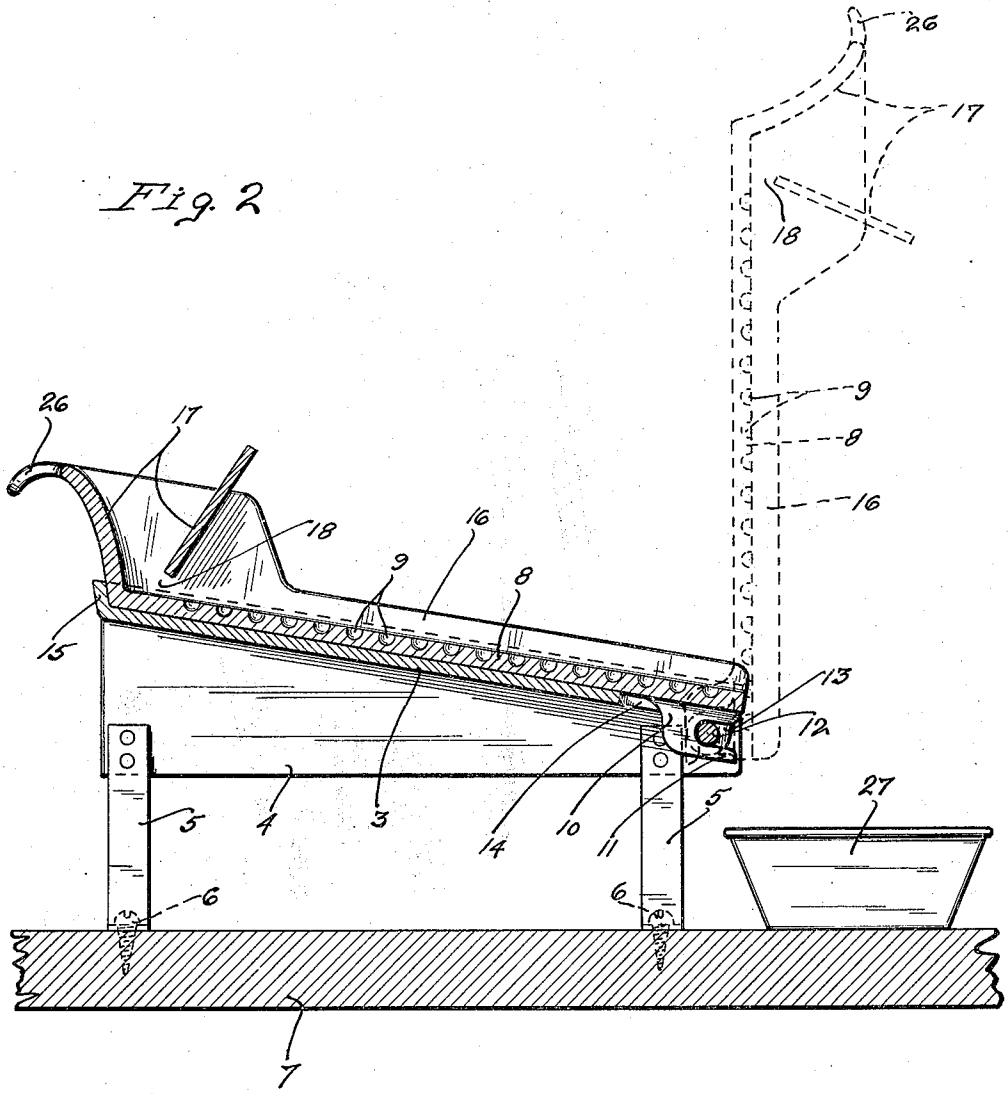
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2 Sheets-Sheet 2

Fig. 2



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UNITED STATES PATENT OFFICE.

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DOCKAGE TESTER.

Application filed January 25, 1926. Serial No. 83,548.

My present invention provides a device especially designed and particularly adapted for use as a dockage or sample tester, and generally stated, it consists of the novel devices, combinations of devices and arrangements of parts hereinafter described and defined in the claims.

An extremely simple and highly efficient form of this improved separator or dockage tester is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a plan view of the improved machine or dockage tester; and

Fig. 2 is a section on the line 2—2 of Fig. 1.

In this preferred arrangement of the machine, I employ an inclined separating plate provided with pockets adapted to receive certain kinds of materials, such as wheat, but to reject other kinds of grain, such as oats, barley, and the like; and this plate is mounted on a vibratory supporting bed. The said supporting bed may take various forms, but as shown, it is made up of an inclined plate 3 with depending side flanges or boards 4 secured to the upper ends of four upright resilient or spring metal supporting legs 5, which latter, at their lower ends, are anchored by screws 6 or other suitable devices to a floor 7 or other fixed structure.

The separating plate 8 is formed with quite closely positioned pockets 9, which, for the separation of wheat from oats, will be of such size that they will receive the wheat but will not completely receive nor hold the longer grains, such as oats and barley. This pocketed separating plate rests on the supporting bed plate 3 and, hence, will be carried in an inclined position. Secured to and depending from the lower end of the separating plate 8 are hinge lugs 10 formed with open seats or notches 11 that pivotally and detachably engage a pivot or hinge rod 12 rigidly secured to and extended between lugs 13 on the bottom of the lower end of the bed plate 3. By reference particularly to Fig. 2, it will be noted that the bed plate 3 is notched at 14 to clear the lugs 10. Also, it will be noted that the bed plate 3, at its upper edge and at its sides, is formed with an upstanding retaining flange 15 within which the upper and end side portions of the separating plate 8 are seated. The separating plate 8 is formed at its side edges with upstanding flanges 16 that are increased in depth at their upper ends so that they form the sides of a receiving hopper 17 located at the upper or receiving end of said separating plate. The front plate of this hopper 17 is spaced from the separating plate so as to afford a feed passage 18 through which the commingled stock will be delivered onto the pocketed portion of the separating plate.

To produce a flow of the commingled stock downward over the pocket surface of the separating plate, vibratory movement of the latter is required, and this may be best accomplished by vibrating the supporting bed. Of course, such vibratory motion may be produced by any suitable mechanism or means but, as shown, is arranged to be produced by a power device shown only in Fig. 1 and which power device involves a shaft 19 journaled in suitable fixed bearings 20 and provided at one end with an eccentric wrist pin or crank 21 connected by a link 22 to a bracket 23 rigidly secured to one side plate 4 of the vibratory supporting bed. On the shaft 19 is a pulley 24 over which, as shown, runs a power-driven belt 25. The upper plate or side of the hopper 17 is shown as provided with a projecting hand piece 27 by means of which the separator may be readily moved on the pivot rod 12 from its operative position shown by full lines into its discharged position shown by dotted lines in Fig. 2. The numeral 27 indicates a receptacle located in the discharge end of the separating plate 8.

The dockage tester may be used in a number of different ways and for different kinds of separations, depending upon the size of the pockets in the separating plate. For the present illustration, assume that the pockets in the separating plate are of such size and depth that they will receive and hold wheat kernels lodged therein but will reject or, at any rate, will not permanently hold the longer grains, such as oats and barley. Then, assume that the device is to be used to primarily separate the wheat and smaller seeds from the oats and barley. The commingled stock, assumed to consist of wheat, oats, barley and bad or small seeds, which are usually designated as dockage, will be placed in the

hopper 17. This commingled stock will run from the hopper onto the upper portion of the inclined separating plate and, under vibration of the latter, will be caused to spread out and slowly run down over the pocketed surface of the separating plate. The long grains, such as oats and barley, will not be permanently lodged in the pockets but will be rejected thereby and will finally be shaken off from the lower end of the separating plate, while the wheat and small seeds or dockage will be caught and retained in the pockets.

If a receptacle 27 be placed below the lower end of the separating plate, the rejected oats and barley will be precipitated into the same. Then another receptacle may be placed in position below the delivery end of the separating plate and then if the separating plate be turned into an up-right position, as indicated by dotted lines in Fig. 2, the materials lodged in the pockets 9, to wit: the wheat and smaller grains or seeds, or, in other words, the dockage, will be discharged from the separating plate and into such receptacle. The separation of the dockage from the good wheat may then be performed by the use of a separating plate having smaller pockets, that is, pockets of such smaller size than that of the plate just above described that they would receive and hold the dockage or seeds smaller than wheat and will not permanently hold but will reject the wheat, so that the latter will be discharged off from the lower end of the separating plate under vibration thereof, while the dockage will be held in the pockets and may subsequently be discharged into a suitable receptacle when the separating plate is turned into an upright position.

From what has been said, it is obvious that by the use of separating plates having pockets of the appropriate sizes, various different kinds of separations of grains, seeds or like materials may be very effectually accomplished.

As a further illustration of the use of the dockage tester or separator, it may be used to separate broken kernels from whole kernels of rice, or for the separation of broken kernels of any kind of grain from the whole kernels.

The device described illustrates a very simple embodiment of the invention, but it will, of course, be understood that various modifications thereof may be made, all within the spirit of the invention herein disclosed and claimed.

As the simplest means of causing the stock to travel from the hopper toward the discharge end of the separating plate, the said plate is slightly inclined toward its delivery end, but I do not limit myself to this particular means for causing travel of the stock.

What I claim is:

1. In a separator of the kind described, a separating plate provided with pockets adapted to receive and hold certain materials and to reject other materials, means for vibrating said separating plate to shake off the rejected materials, said plate being detachably pivoted so that it may be moved to a position to discharge from said pockets the material lodged therein and may be removed for the substitution of a similar separating plate having pockets of a different character.

2. In a separator of the kind described, a separating plate provided with pockets adapted to receive and hold certain materials and to reject other materials, means for vibrating said separating plate to shake off the rejected materials, said plate being detachably pivoted so that it may be moved to a position to discharge from said pockets the material lodged therein and may be removed for the substitution of a similar separating plate having pockets of a different character, and a hopper applied at the receiving end of said detachably pivoted plate and removable therewith.

In testimony whereof I affix my signature.

CLARENCE W. CARTER.