F. O. KEENE.

GRAVITY SEPARATOR.

APPLICATION FILED NOV. 29, 1912.

1,069,143. Patented Aug. 5, 1913.

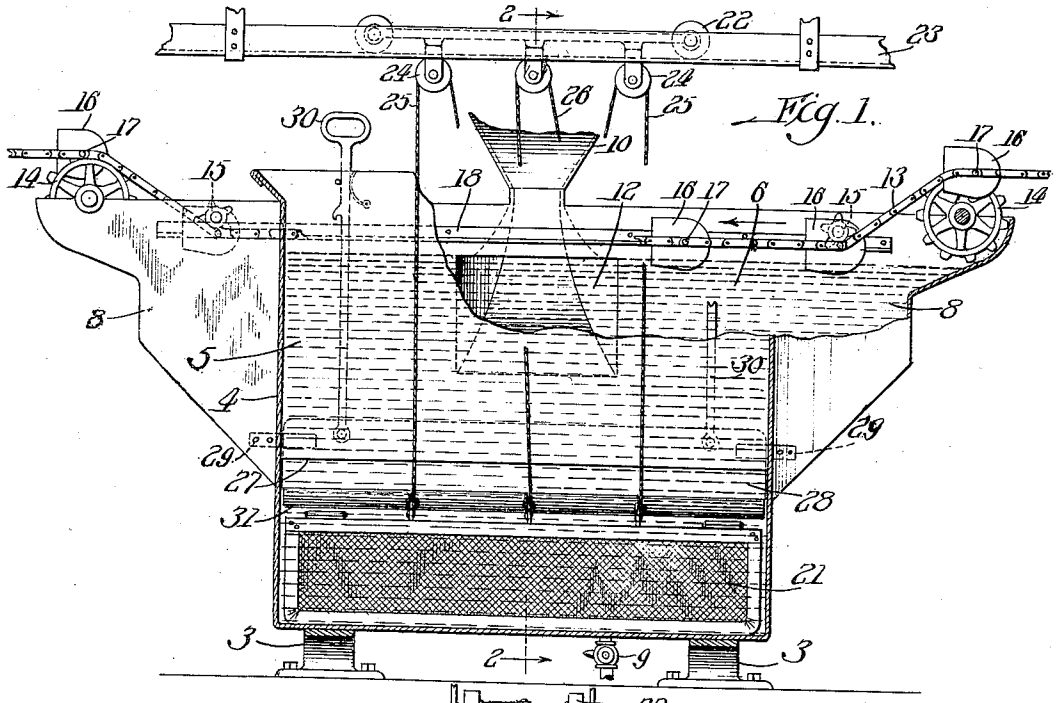

Fig. 1.

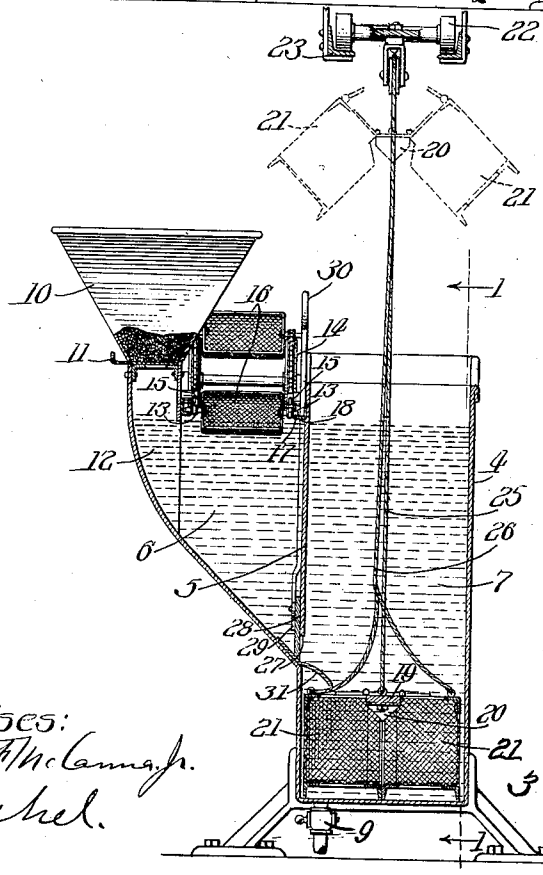

Fig. 2.

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UNITED STATES PATENT OFFICE.

FREEMONT O. KEENE, OF FREEPORT, ILLINOIS.

GRAVITY-SEPARATOR.

1,069,143. Specification of Letters Patent. Patented Aug. 5, 1913.

Application filed November 29, 1912. Serial No. 734,088.

To all whom it may concern:

Be it known that I, FREEMONT O. KEENE, a citizen of the United States, residing at Freeport, in the county of Stephenson and the State of Illinois, have invented certain new and useful Improvements in Gravity-Separators, of which the following is a specification.

This invention relates to separators and more particularly to those known as gravity separators. In separators of this type, peas, beans, etc., are immerged in a solution of water and salt, the light peas rising to the surface, the heavy peas sinking, and by varying the density of the solution the proper grading of the peas is obtained.

The object of this invention is to obtain a simple and efficient separator that shall by its novel construction provide for effective and positive grading of the peas.

A further object is to construct the separator so that the gathering means for the heavy peas will not agitate the brine in which the peas are being separated, which agitation imparts motion to certain slowly sinking peas and causes them to rise to the gathering path of the light peas.

In the accompanying drawing: Figure 1 is a vertical longitudinal section on line 1—1 of Fig. 2, a portion of the dividing wall and conveyer being broken away. Fig. 2 is a transverse vertical section on the line 2—2 of Fig. 1.

The separator is suitably mounted on standards 3, and has a body portion 4 forming a reservoir suitable for containing liquid. A vertical and longitudinal partition 5 divides the reservoir into two compartments 6 and 7, the compartment 6 having longitudinal extensions 8, as shown. A solution of water and salt of the desired density is contained in the reservoir filling both compartments, and may be drained by the valve 9.

Suitable means for admitting the peas or other articles to be separated are provided, having here shown a hopper 10 carried by the frame 4, having the check 11 (shown closed) and which allows the peas to be immerged into the brine in compartment 6 through the passage 12 in such a manner that the peas will not come in conflict with any gathering means before they have time to be separated.

The peas that float are gathered by suitable means, such as an endless chain 13 suitably driven and guided by the sprocket-wheels 14 and the stud mounted sprocket-wheels 15, the chain carrying a plurality of buckets 16 of a wire mesh construction, which buckets have projecting ears 17 that ride on the track 18 formed of angle iron, the track being carried by the side walls of compartment 6. These buckets travel as indicated by the arrow adjacent thereto, skim the surface of the brine and convey the gathered peas to a suitable receptacle.

A receptacle in the form of a hinged bucket is adapted to rest at the bottom of compartment 7 and comprises a horizontal supporting strip 19 having V-shaped ends 20, two buckets 21 formed with an angle iron frame and covered with a wire mesh, the top of the buckets being open and hinged to the bar 19 as shown. Means are provided for raising the buckets 21, which consist of a carriage 22 slidable on track 23, the carriage carrying pulleys 24 from which cables 25 are suspended and are attached to the bar 19. When the buckets are raised by cables 25 the weight of the buckets will hold them together and closed, and to dump them a cable 26, suspended from a pulley carried by the carriage and having a connection with the outer edge of each bucket, may be pulled taut, the buckets being dumped as shown in the dotted raised position.

The dividing wall 5 has at its bottom a longitudinal opening 27, which opening can be closed or opened (shown closed) by the slide 28, said slide being guided by the strips 29 and being raised or lowered by the two handles 30 which have a catch at their upper end to hold the slide in a raised position. A guide strip 31 of a flexible material is secured to the bottom of the opening 27 and overhangs the bucket 21 to guide the peas thereinto; the flexibility of the strip being to allow the buckets to be raised.

The operation of the separator is as follows: Upon opening check 11 peas are immerged into compartment 6, the light peas rising to the surface and being gathered by the conveying buckets 16, and the heavier peas sinking to the bottom and passing through opening 27 (the slide 28 being raised) and into the buckets 21. When buckets 21 have been filled the opening 27 is closed and the buckets raised in the above described manner.

It will be seen that by constructing the separator with the two separate compart-

ments, brine in compartment 6, in which peas are settling, is not agitated or disturbed by the gathering means for the heavy peas. In separators of common construction this disturbance causes motion to be imparted to certain slowly settling peas and causes them to rise to the skimming buckets or the gathering path of the light peas and be gathered thereby, thus producing defective separation.

I claim as my invention:

1. In a gravity separator, the combination of a reservoir having two compartments, one of the compartments adapted to receive contents to be separated, the lower portion of said compartment in which the heavier of said contents are adapted to settle being free from conveying means, and gathering means in the other compartment, said compartments provided with an opening therebetween through which said heavier contents may pass to said gathering means.

2. In a gravity separator, the combination of a reservoir having two compartments adapted to contain liquid, one of said compartments forming a separating compartment adapted to allow the heavier of contents immerged therein to settle to the bottom of said compartment and being provided with an opening in the bottom thereof through which said heavier contents may pass, and gathering means located in the other compartment and adapted to receive said contents which have passed through said opening, said gathering means being positioned to not agitate the liquid in the separating compartment while said heavier contents are passing therefrom.

3. In a gravity separator the combination of a reservoir having two compartments, one compartment having an inclined bottom and provided with an opening at the lower portion thereof communicating with both compartments, means for closing said opening, skimming means located in the first mentioned compartment, and gathering means located in the other compartment adjacent said opening.

4. In a gravity separator the combination of a reservoir, a separating compartment located therein, skimming means for the separating compartment, and gathering means located outside the separating compartment comprising a receptacle and means for raising same from the reservoir, said separating compartment provided with a passage leading therefrom to discharge the contents thereof not gathered by the skimming means into said gathering receptacle.

5. A gravity separator comprising two compartments, one of said compartments having a portion of its bottom sloping downward and joining the other compartment, said compartments provided with an opening therebetween adjacent said joining point, and a closure adapted to cover said opening, the contents of the separating compartment that are not retained thereby being adapted to pass through said opening and into the other compartment.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FREEMONT O. KEENE.

Witnesses:
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