O. A. BURGESON.

GRAIN SEPARATOR.

APPLICATION FILED JUNE 18, 1915.

1,168,282.

Patented Jan. 18, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

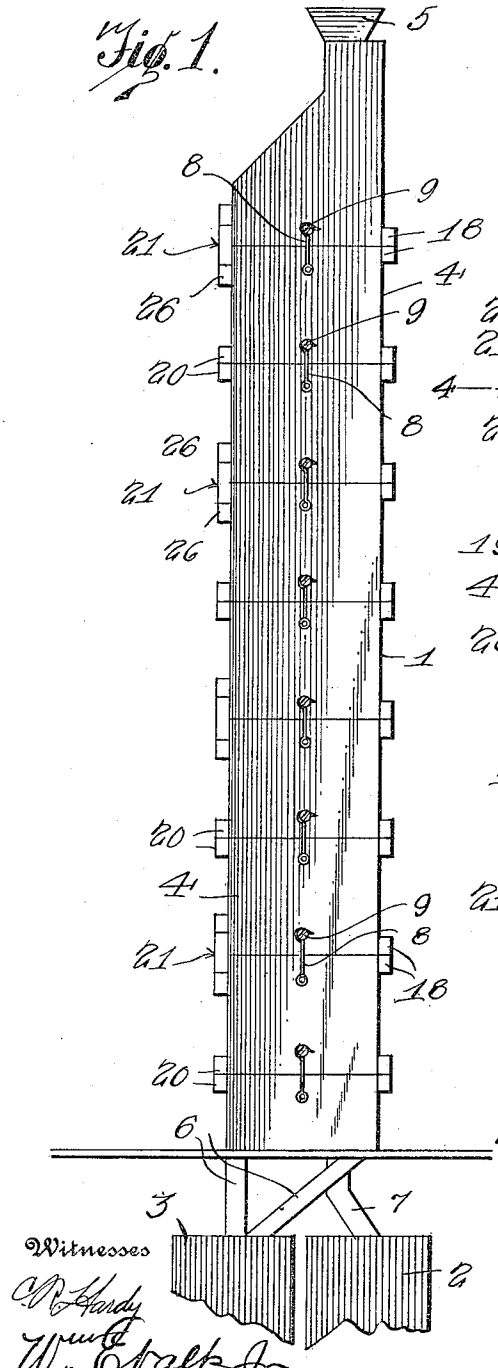
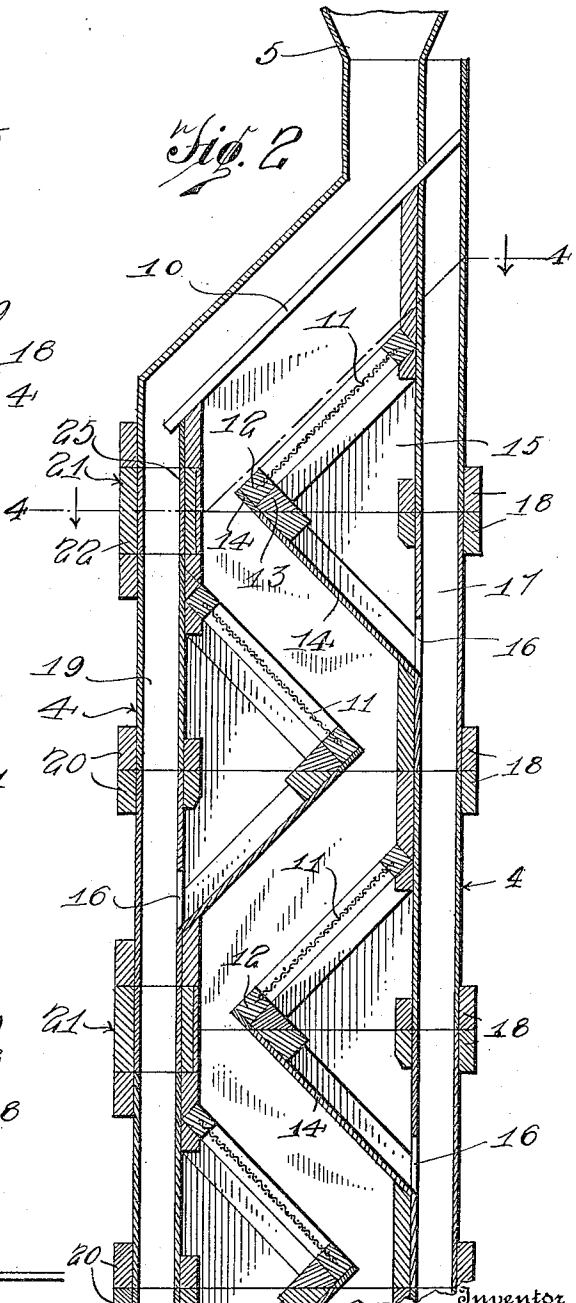


Fig. 2.



Witnesses

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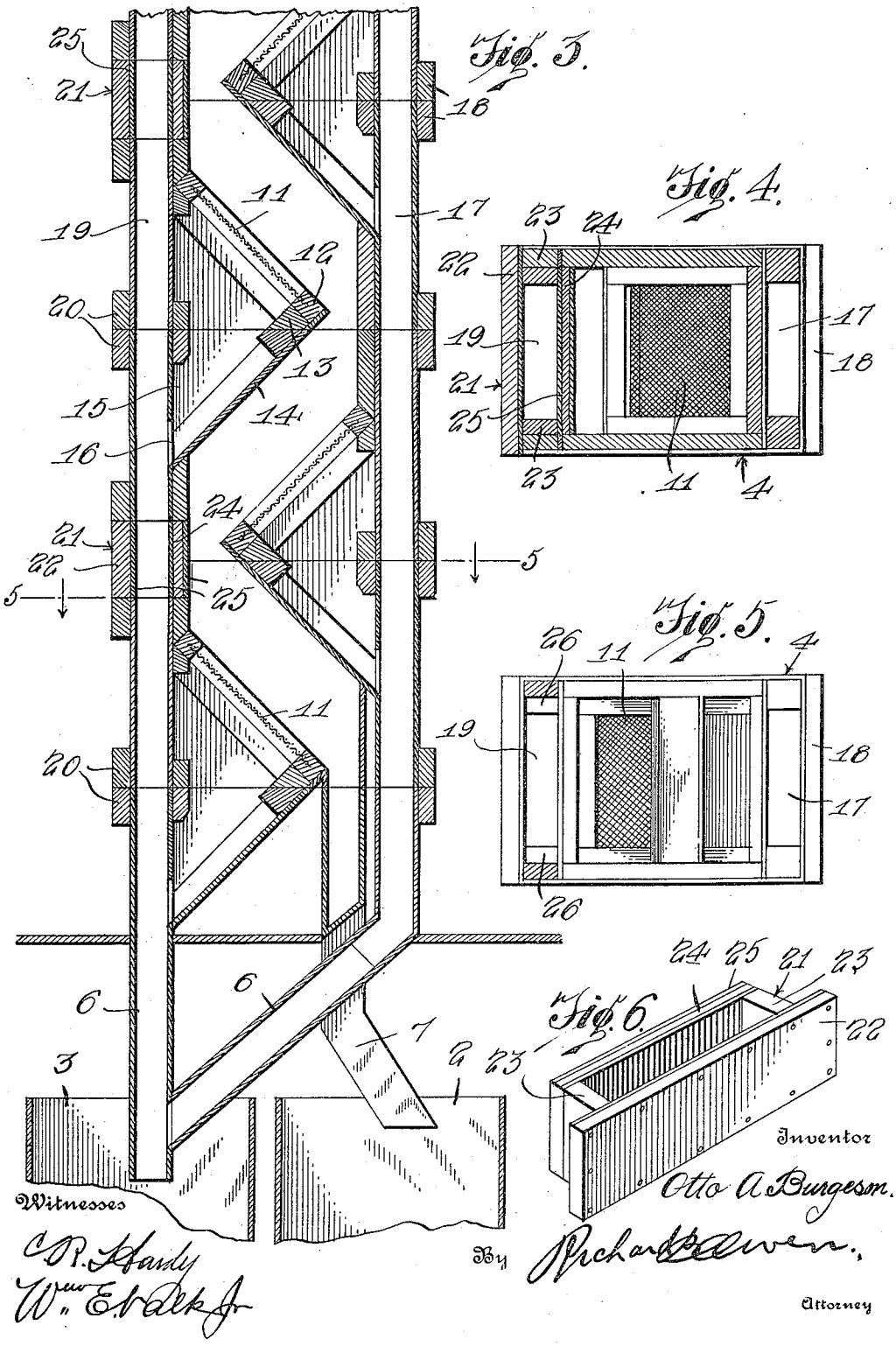
2 SHEETS—SHEET 2.



THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

OTTO A. BURGESON, OF NANSON, NORTH DAKOTA.

GRAIN-SEPARATOR.

1,168,282. Specification of Letters Patent. Patented Jan. 18, 1916.

Application filed June 18, 1915. Serial No. 34,863.

To all whom it may concern:

Be it known that I, OTTO A. BURGESON, citizen of the United States, residing at Nanson, in the county of Rolette and State of North Dakota, have invented certain new and useful Improvements in Grain-Separators, of which the following is a specification.

My invention relates to gravity grain separators; and is designed as an improvement over a similar structure illustrated, described and claimed in a copending application filed by me Jan. 16, 1914, bearing Serial #845,449.

An object of the invention is to provide a knock-down or sectional separator in which the several sections are held in vertical alined relation and against displacement by means of removable doors suitably and conveniently situated, intermediate alternating sections, whereby if necessary, access may be gained to any one of the several sections utilized in the separating process.

A further object of the invention is to provide a removable door, which, in reality, forms a part of the discharge chute for the grain, and which, in practice, engages with the abutting sections in such a novel and peculiar manner as to preclude relative lateral movement.

I further contemplate a means whereby the dust and screenings may be confined in the separator interior.

The above and additional objects are accomplished by such means as are illustrated in their preferred embodiment in the accompanying drawings, described in the following specification and then more particularly pointed out in the claims which are appended hereto and form a part of this application.

In describing my invention in detail reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a side elevation of my improved grain separator; Fig. 2 is an enlarged longitudinal sectional view illustrating the upper portion of the separator; Fig. 3 is a similar view illustrating the lower portion of the separator; Fig. 4 is a section on the line 4—4 of Fig. 2; Fig. 5 is a section on the line 5—5 of Fig. 3; and Fig. 6 is a detail perspective view of one of the doors.

Referring now to the drawings by numerals, 1 designates as an entirety the grain separator, 2 a suitable receptacle into which the grain is directed and 3 a suitable receptacle into which the dust, chaff or screening is directed, the latter, receptacle 3, being positioned in proximity to the receptacle 2, preferably at one side thereof.

Separator 1 is made up of a plurality of duplicate sections designated, each as an entirety by the numeral 4, the uppermost receptacle being equipped with a hopper 5 into which the grain is poured and the lowermost receptacle with a discharge chute 6 leading to the container or receptacle 3 and with a discharge chute 7 leading to the container or receptacle 2. Each section 4 of the separator is provided with a hook 8 whereby the several sections may be fastened or locked together, one upon the other, the hook of each section engaging a pin 9 fastened to the section next above. This type of fastening is provided upon each side of the separator.

The process of separation is carried into effect in much the same manner as outlined in my former application in that the grain is first directed onto a plurality of inclined uniformly spaced parallel rods 10, the grain passing therebetween being directed by gravity onto a plurality of screens each of a different mesh, the several screens being arranged in zig-zag relation and each designated 11. Each screen 11 is mounted on a movable frame 12 in turn supported at an inclination to the horizontal by means of cross beams 13 and a metallic plate 14 affixed thereto. The metallic plate 14 is made up of divided plate sections, one section forming a part of one of the separator sections and the other section forming a part of separator section adjacent thereto. Said plate 14 constitutes the floor of a compartment 15 into which the chaff, dust and screening separated from the grain is directed. The floor of the compartment is set at an inclination opposite to that of the screen 11, the dust, chaff and screening being thus directed by gravity through an opening 16 and into a chute 17 formed at

the rear wall of the device or separator. Chute 17 extends longitudinally of the separator and throughout its entire length, each of the successive or superposed compartments leading thereto that the substance separated may be finally directed to the container 3.

Strips 18 are affixed to the inside and outside walls of the chute 17, the strips extending across the separator and resting one upon the other when the several separator sections are superposed. By this arrangement, a guard is formed whereby all of the sections are incased interiorly of the separator and dust and dirt held against escape.

A second chute 19 is formed in parallelism with the chute 17 and forwardly of the separator to extend, like said chute 17, throughout its entire length. The latter chute 17 is open to the several compartments at the forward side of the separator to catch and direct the chaff and screening to the container 3. Strips 20, like strips 18, may be arranged to extend across the top and bottom of alternate separator sections to serve in the same capacity as the strips 18 aforesaid.

That access may be gained to the screen 12 (in pairs) doors, designated each as an entirety by the numeral 21 are provided. These doors 21 are of a novel construction in that they form a part of the forward discharge chute 19. Each door may be said to consist of an enlarged forward plate 22, end wall 23 and a rear wall 24, the front and rear walls being alined as indicated at 25. Supports 26 are formed interiorly of the chute 19, one at each end or side thereof, the supports, in actual practice, affording a rest for the end wall 23 of the door. The end walls and the said supports are of an equal thickness that they may extend in vertically alined relation and flush. By a door construction as shown, the forward plate 22 would extend beyond the end wall 23 to terminate at a point flush with the inside walls of the separator and, by so extending, form with strips 26 a means whereby the chaff, dust and dirt is interiorly confined. The strips 26 are located preferably both above and below each door to engage respectively with the top and bottom edges of the forward plate 22.

Upon reference to Fig. 2 it will be noted that the inner wall 24 of the door, when the door is in place, closes communication between the chute 19 and the zig-zag chute provided for the uncleaned grain. The said inside wall is both interiorly and exteriorly lined and when properly placed, lies substantially flush with the inner wall of the chute that no obstruction or protuberances may exist.

A positive closure is in effect by the use of a door as shown, this for the reason that the opening within which the door is fitted, extends both above and below the dividing line for the abutting separator sections thereby disposing all means of egress out of alinement.

In practice, and as suggested, the uncleaned grain is fed to the hopper 5 and onto the screening rods 10. Straw and like matter will be deflected by the mentioned rods to the chute 19. The grain and falling dirt passing between the rods will be directed alternately to the screens, one after the other, and as the screens are of varying types, the grain, upon reaching the lowermost screen, will have been separated of all impurities such as chaff, dust and dirt and will be conveyed to the container 2 in a sanitary cleaned state. All extraneous substances will be directed respectively by the chutes 17 and 19 to the container 3 in much the same manner as set forth at length in my copending case.

In reduction to practice, I have found that the form of my invention, illustrated in the drawings and referred to in the above description, as the preferred embodiment, is the most efficient and practical; yet realizing that the conditions concurrent with the adoption of my device will necessarily vary, I desire to emphasize the fact that various minor changes in details of construction, proportion and arrangement of parts may be resorted to, when required, without sacrificing any of the advantages of my invention, as defined in the appended claims.

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

1. In a grain separator, a plurality of superimposed separator sections, and a removable door arranged to fit between abutting sections to afford a means whereby said sections are held against relative lateral movement and for the purpose specified.

2. In a grain separator, a plurality of superimposed separator sections, lock means to maintain the sections in vertical alinement, a plurality of screens arranged interiorly of the separator, and a removable door arranged to fit between the abutting sections and to afford a means whereby said sections are locked against relative lateral movement, a portion of the door projecting exteriorly of the separator to provide thereon a means confining the material acted on against escape.

3. In a grain separator, a plurality of superimposed separator sections, each section being cut away, the recess formed by that portion cut away providing a door opening, a door fitting the opening, the mentioned door engaging the abutting sections to preclude lateral displacement thereof, and means affixed to the outside of the separator and engaging the top and bottom

edges of the door to afford a closure means at such points, substantially as described.

4. In a grain separator, a plurality of superimposed separator sections, one corner of each section being cut away to afford with the adjacent corner of the abutting sections a recess, a door fitting each recess, supports for the door disposed interiorly of the separator, an extension formed at each end of the door to overlap the side walls of the separator and terminate flush with the outside thereof, and strips affixed to the separator to engage with the door for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

OTTO A. BURGESON.

Witnesses:
LINUS JOHNSON,
HERMAN SALEM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."