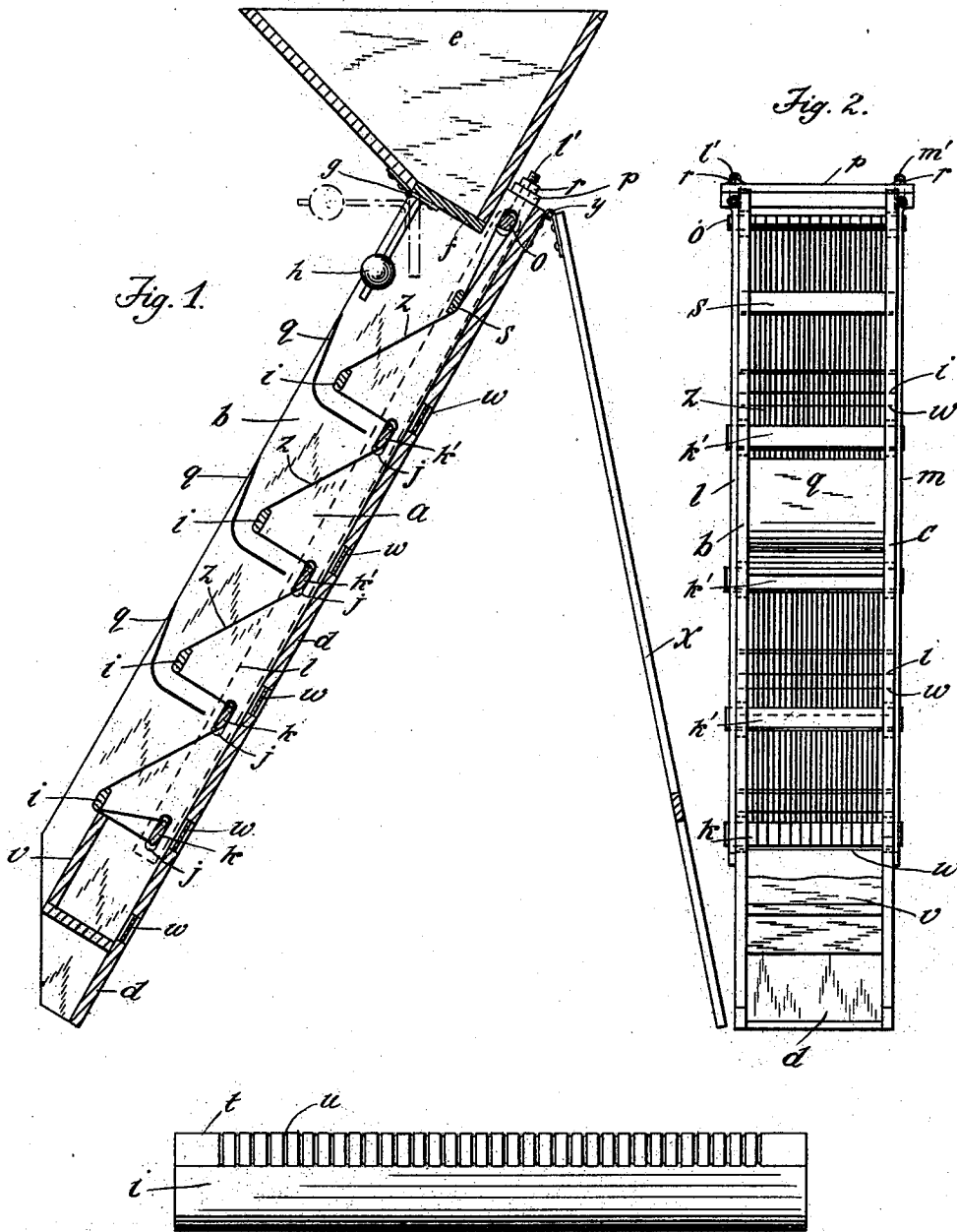


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GRAIN AND SEED SEPARATOR AND CLEANER.
APPLICATION FILED APR. 4, 1910.

982,207.

Patented Jan. 17, 1911.



WITNESSES:

Cecil Long
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Fig. 3.

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GRAIN AND SEED SEPARATOR AND CLEANER.

982,207.

Specification of Letters Patent.

Patented Jan. 17, 1911.

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To all whom it may concern:

Be it known that I, OWEN W. HALL, a citizen of the United States, residing at Portland, in the county of Multnomah, State of Oregon, have invented a new and useful Improvement in Grain and Seed Separators and Cleaners, of which the following is a specification.

My invention has for its object to obtain a simple apparatus adapted to effectively separate the impurities from grain and seeds, and also adapted for separating different kinds of grains and seeds from each other.

My invention in its general aspect comprises a chute-like casing, between the sides of which is provided a screen surface arranged in steps, and said screen surface being made of wire arranged in parallel longitudinal strands or courses, spaced from each other relatively to the size of the material for which my separator is to be used; said courses of wire being led to and fro over bridge bars therefor provided between the ends of the casing; said bridge bars being arranged in two longitudinal rows, one above the other, one row including a series of longitudinally movable bridge bars, and means being provided connecting the opposite ends of all such movable bridge bars, and by which the same may be simultaneously drawn up, in order to place the wire strands in their proper state of tension.

In the drawings: Figure 1 is a diagrammatic sectional side elevation, taken longitudinally, approximately through the center, of my device; Fig. 2 is a front elevation of my device; looking at the same arranged in upright position, as shown in Fig. 1; and Fig. 3 is a detail, on larger scale, of one of the bars over which the courses of wire of my screen are led, and by which the same are supported.

In its details of construction my invention consists of a casing, *a*, arranged like and serving the purpose of a chute, said casing consisting of side-pieces *b*, *c*, and a bottom *d*. At the top of the casing is supported a hopper *e*, the bottom of which is provided with a gate *f*, controlled by a counterweight *h*, in such wise as to be automatically held in closed position, and thus automatically regulating the feed of the grain, or other material, run through my device. Between the sides, *b*, *c*, of the casing, near the top, are rigidly secured a series of trans-

verse bridge bars *i*, and at the bottom the sides, *b*, *c*, of the casing are provided with a related series of longitudinally alined slots *j*, through which extend, and in which are seated, the ends of a series of adjustable transverse bridge bars *k*, *k'*, *o*; it being convenient to make the latter round. The ends of the transverse bridge bars *k*, *k'*, *o* are connected by means of tension bars *l*, *m*, which may be arranged on the exterior of the sides of the casing *a*. The upper ends of said tension bars *l*, *m* are provided with rod-like threaded extremities, and said extremities extend through a perforated yoke-bar *p*, supported crosswise on the upper ends of the sides, *b*, *c*, of the casing; and nuts *r*, on said threaded extremities of the tension bars *l*, *m*, exterior of the yoke bar, provide the means for drawing up said tension bars *l*, *m*, and therewith the movable bridge bars as required to adjust the tension of the wire strands *z* composing the screen. The top upper edge of the rigid cross cars *i*, and the bottom lower edge of the cross-bars *k'*, as well as the rigid bridge bar *s*, are preferably beveled, as illustrated by the surface *t* of the bar *i*, shown in Fig. 3, and said beveled surfaces are provided with grooved bearing faces *u*, in which the individual courses of the wire lie, and by which they are held against displacement. This arrangement facilitates the adjustment of the wires to proper tension.

w represent a series of progressively arranged slides, in the bottom *d* of the casing, which slides may be opened to cause the discharge of the material as desired.

x represents a leg hinged at *y* to the casing *a*, and thus adjustable relatively to the desired pitch of my device.

The screened material is discharged at the bottom of my device, over the surface *v*.

The screen is made of wire *z*, arranged in longitudinal parallel strands by being led to and fro over said transverse bridge bars, arranged in upper and lower rows between the ends of the casing. That is to say, one end of such wire is fastened to the upper-end movable bridge bar *o*, the wire is then passed under the fixed bridge bar *s*, then over the first of the fixed upper row of bridge-bars *i*, then around the series of lower row movable and upper row fixed bridge bars *k'*, *i* and finally around the movable bridge bar *k*; then the wire is led back over

the fixed bridge bars *i* and movable bridge bars *k'* to the fixed bridge bar *s*, and under the latter back to the movable bridge bar *o*; then the wire is led back and forth in the same manner, and finally the end of the wire is also fastened to the movable bridge bar *o*. By this arrangement the movable bridge bars, when simultaneously drawn up by the adjustment of the nuts *r* on the threaded extremities *l'*, *m'* of the tension bars, *l*, *m*, will cause a pull of the wire strands, in opposite directions, over the fixed bridge bars *i*, and this effect enables me to obtain a proper tension in all the strands of the oblique steps in the wire screen surfaces. And this effect is furthermore obtained by a mere adjustment of the nuts *r*. In arranging the wire strands as described, the individual strands will rest in the grooves of the beveled surfaces provided therefor on the outer faces of the bridge bars *k'*, *i* and *s*.

The proper degree of tension to be given the courses of wire may be conveniently ascertained by the sound emitted from the wire when drawing the fingers over the same.

The best wire for my device are the kinds commercially sold under the names phosphor bronze or annealed tinned steel wire. All the transverse bridge bars are best galvanized or otherwise protected by some convenient mode against rust. I make said bars of steel.

When not in use, the tension of the courses of wire may be released, so as to relieve the strain. For screening grain, the parallel strands or courses of wire are approximately arranged 6 to 11 wires to the lineal inch. For other material the judgment of the operator must be used.

The transverse bridge bars *k*, *k'* are separated approximately 15 inches from each other, and the upper and lower rows of bars are separated approximately 4 inches, in the clear, from each other.

I claim:

1. In a grain and seed separator and cleaner, the combination of a chute-like casing; a series of transverse bridge-bars between the sides of said casing, said bars arranged spaced apart in upper and lower horizontal rows, the bridge bars of one row being fixed in place, and the bridge bars of the other row being longitudinally movable in the casing; a screen surface made of wire arranged in longitudinal parallel strands, the ends of said wire being fastened to one of said bridge bars, and the intermediate part of the wire being led to and fro around the outer faces of said fixed and adjustable bridge bars, and arranged in steps, substantially as described; tension bars connecting said movable bridge bars; and means for simultaneously drawing up the tension bars.

2. In a grain and seed separator and

cleaner, the combination of a chute-like casing; a series of transverse bridge-bars between the sides of said casing, said bars arranged spaced apart in upper and lower horizontal rows, the bridge bars of one row being fixed in place, and the bridge bars of the other row being longitudinally movable in the casing; a screen surface made of wire arranged in longitudinal parallel strands, the ends of said wire being fastened to one of said bridge bars, and the intermediate part of the wire being led to and fro around the outer faces of said fixed and adjustable bridge bars, and arranged in steps, substantially as described; tension bars arranged along the exterior sides of the casing and provided with a series of apertures in which the ends of the movable bridge bars are inserted; and means for simultaneously drawing up the tension bars.

3. In a grain and seed separator and cleaner, the combination of a chute-like casing; a series of transverse bridge-bars between the sides of said casing, said bars arranged spaced apart in upper and lower horizontal rows, the bridge bars of one row being fixed in place, and the bridge bars of the other row being longitudinally movable in the casing; a screen surface made of wire arranged in longitudinal parallel strands, the ends of said wire being fastened to one of said bridge bars, and the intermediate part of the wire being led to and fro around the outer faces of said fixed and adjustable bridge bars, and arranged in steps, substantially as described; tension bars arranged along the exterior sides of the casing and provided with a series of apertures in which the ends of the movable bridge bars are inserted; the tension bars at one extremity being made in the form of threaded rods; and means for simultaneously drawing up the tension bars.

4. In a grain and seed separator and cleaner, the combination of a chute-like casing the sides thereof provided with a series of registering slots, spaced apart and longitudinally aligned; a series of transverse bridge-bars between the sides of said casing, said bars arranged spaced apart in upper and lower horizontal rows, the bridge bars of one row being fixed in place, and the ends of the bridge bars of the other row extending through and being seated in said slots of the sides of the casing; a screen surface made of wire arranged in longitudinal parallel strands, the ends of said wire being fastened to one of said bridge bars, and the intermediate part of the wire being led to and fro around the outer faces of said fixed and adjustable bridge bars, and arranged in steps, substantially as described; tension bars arranged along the exterior sides of the casing and provided with a series of apertures in which the ends of the movable

bridge bars are inserted; and means for simultaneously drawing up the tension bars.

5 In a grain and seed separator and cleaner, the combination of a chute-like casing the sides thereof provided with a series of registering slots, spaced apart and longitudinally alined; a series of transverse bridge-bars between the sides of said casing, said bars arranged spaced apart in upper
10 and lower horizontal rows, the bridge bars of one row being fixed in place, and the ends of the bridge bars of the other row extending through and being seated in said slots of the sides of the casing; a screen surface
15 made of wire arranged in longitudinal parallel strands, the ends of said wire being fastened to one of said bridge bars, and the intermediate part of the wire being led to and fro around the outer faces of said fixed and adjustable
20 bridge bars, and arranged in steps, substantially as described, the tension bars at one extremity being made in the form of threaded rods; a yoke-bar at one end of the casing, said yoke-bar provided with perforations through which the threaded extremities of the tension bars project; and
25 nuts on the threaded extremity of the tension bars exterior the yoke-bar.

6. In a grain and seed separator and
30 cleaner, the combination of a chute-like casing; a series of transverse bridge bars between the sides of said casing, said bars arranged spaced apart in upper and lower horizontal rows, the bridge bars of one row
35 being fixed in place, and the bridge bars of the other row being longitudinally movable

in the casing; said bridge bars provided with beveled grooved bearing surfaces on their outer faces; a screen surface made of wire arranged in longitudinal parallel strands, the ends of said wire being fastened to one of said bridge bars, and the intermediate part of the wire being led to and fro around the outer faces of said fixed and adjustable
40 bridge bars, and arranged in steps, substantially as described; tension bars connecting said movable bridge bars; and screw actuated means for simultaneously drawing up the tension bars.

7. In a grain and seed separator and
50 cleaner, the combination of a chute-like casing; a series of transverse bridge-bars between the sides of said casing, said bars arranged spaced apart in upper and lower horizontal rows, the bridge-bars of one row
55 being longitudinally movable in the casing; a screen surface made of wire arranged in longitudinal parallel strands, the ends of said wire being fastened to one of said bridge bars, and the intermediate part of
60 the wire being led to and fro around the outer faces of said fixed and adjustable bridge bars, and arranged in steps, substantially as described; tension bars connecting said movable bridge bars; and screw actuated
65 means for simultaneously drawing up the tension bars.

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Witnesses:

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