

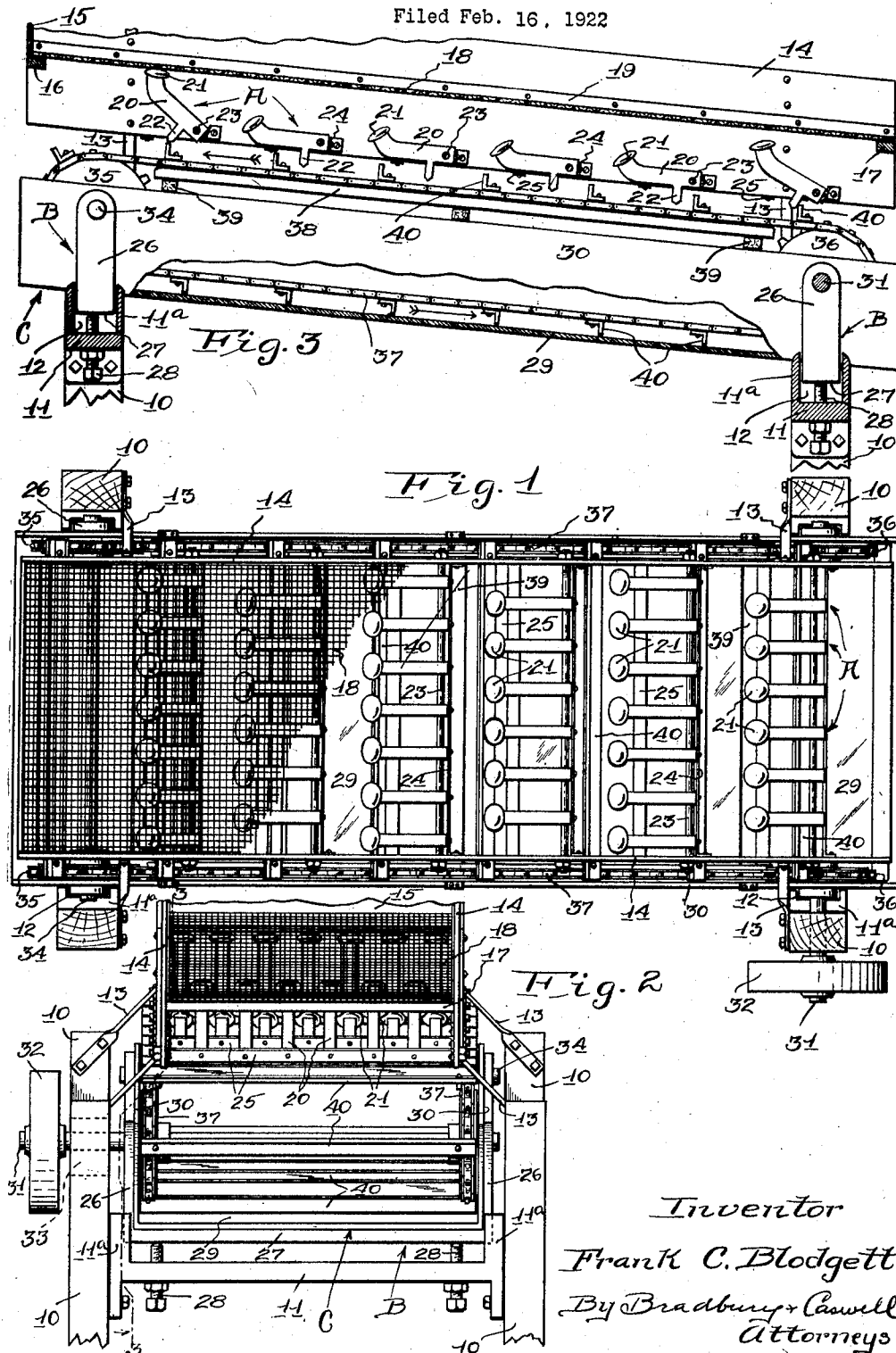
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F. C. BLODGETT

GRAIN CLEANING MACHINE

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Inventor
Frank C. Blodgett
By Bradbury & Caswell
Attorneys

UNITED STATES PATENT OFFICE.

FRANK C. BLODGETT, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF TO
FRANK J. SEIDL, OF MINNEAPOLIS, MINNESOTA.

GRAIN-CLEANING MACHINE.

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To all whom it may concern:

Be it known that I, FRANK C. BLODGETT, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and useful Grain-Cleaning Machine, of which the following is a specification.

My invention relates to improvements in grain cleaning machines.

One object is to provide a simple, durable and efficient machine of this kind, including an inclined grain receiving screen agitated by tappets placed therebeneath, the agitation of the screen serving to sift the grain and urge the same downward toward the depressed delivery end of said screen.

Another object is to supply a device, as above, the same having a hopper to receive the screenings and tappet actuating means interposed between the tappets and said hopper, said actuating means serving to eject the screenings from the hopper.

A further object is to provide a machine of the present nature, the tappet actuating means being adjustable to alter the action of the tappets and the hopper movable with said actuating means so that the operation of the latter, as a screening ejector, is maintained.

With the foregoing and other objects in view, which will appear in the following description, the invention resides in the novel combination and arrangement of parts and in the details of construction hereinafter described and claimed.

In the drawings, Fig. 1 is a plan view of a machine embodying my invention, the lower end of the screen being broken away to better illustrate the parts therebeneath; Fig. 2 is a front elevation of the machine and Fig. 3 is a longitudinal sectional view taken on the line 3-3 of Fig. 2.

Referring to the drawings, I have used the reference numeral 10 to designate the legs or standards of the frame of my machine. The legs 10, at each end of the machine, are joined by cross-pieces 11 formed with vertical ways 12 in the upright extremities 11 thereof. At the upper end of each leg 10 is an inwardly inclined brace 13. These braces carry inclined side-boards 14, which constitute a part of the machine framework. An end-board 15 and a rest 16 join

the elevated ends of said side-boards 14, the same being also joined at their lower ends by a rest 17. An inclined grain receiving screen 18 is stretched between the side-boards 14. The side margins of said screen 18 are secured to the side-boards 14 by cleats 19, while the end margins of the screen are suitably fastened on the rests 16 and 17. I supply a plurality of tappets A for striking the under side of the screen 18 and agitating the same, whereby the grain thereon is sifted and urged, by the aid of gravity, toward the lower delivery end of said screen. Each tappet A consists of an arm 20, fitted with a head 21 and a cam 22 depending from said arm near the end opposite said head. I prefer that the arms 20 be of hard wood, the heads 21 of rubber or the like, and the cams 22 of sound deadening, wear resisting material. A number of rods 23 traversing the space between the side-boards 14 and, lying in a common plane beneath the screen 18, supply pivotal supports for the arms 20, which are formed with bores, at the ends opposite the heads 21, to receive said rods. The straps 24, anchored at their ends to the side-boards 14 are secured to the pivoted extremities of the arms 20 to space the tappets A on their respective rods 23. The tappets on each rod 23 constitute a transverse series, the tappets in each series being limited in their fall by gravity, through the medium of a bumper strap 25 traversing the space between the side-boards 14. U-shaped brackets B are fitted in the cross-pieces 11 at the ends of the frame, the upright reaches 26 thereof being slidable in the vertical ways 12 and the bases 27 supported on set-bolts 28, threaded in said cross-pieces. The brackets B supply a mounting for a hopper C, adapted to receive screenings from the screen 18 thereabove and, further, to support the tappet actuating means, which will be presently described. The hopper C comprises a flat bottom 29 and upright sides 30, the latter being embraced between the branches 26 of the brackets B. The tappet actuating means, includes a drive shaft 31 journaled in the branches 26 of the bracket B at the delivery end of the machine, said shaft being fitted with a power pulley 32 on an end thereof reaching through a vertical slot 33 in one of the posts 10. An

idler shaft 34, journaled in the other bracket B, supports spaced gears 35, similar gears 36 being secured to the drive shaft 31.

Each of two endless chains 37 is carried at one turn on one of the gears 35 and at the other turn on one of the gears 36. The upper reaches of said chains are slidably supported on rails or slides 38, which, in turn, are supported by reaches 39 resting on the sides 30 of the hopper C. Bars 40 reaching from one chain 37 to the other are attached to opposite links in said chains. The various parts are so arranged that the bars 40, on the upper reaches of the chains 37, travel in a plane occupied by the cams 22 of the tappets A, whereby said bars will engage said cams and cause the tappets to be swung upward against the under side of the screen 18. Each bar 40 simultaneously actuates all of the tappets in a given series, said bars being arranged so that the several series of tappets are actuated, one after the other, in rapid succession. The force of the impacts of the tappets A against the screen 18 may be altered, by adjustment of the set-bolts 28. These set-bolts elevate and lower the brackets B, thus causing the bars 40, on the upper reaches of the chains 37, to travel in paths nearer to or further removed from the plane of the pivotal axes of the tappets A. By decreasing the distance between the tappet actuating path of the bars 40 and maintaining said path in parallelism with the plane intersecting the axes of the rods 23, the force of the impacts of the tappets A against the screen 18 is uniformly increased from one end of the screen to the other and by decreasing that distance, the force of the blows of the tappets A against the screen 18 is lessened. Adjustment of the set-bolts 28 causing the bars 40 to travel in a path inclined with respect to the plane of the axes of the rods 23, results in a varied action between the several series of tappets, the force of the impacts thereof against the screen 18 increasing or decreasing progressively from one end of the screen to the other. The bars 40 on the lower reaches of the chains 37, sweep the bottom 29 of the hopper C, ejecting the contents thereof from the end beneath the delivery end of the screen 18. The ejecting function of the bars 40 is not impaired by the adjustments altering the action of the tappets A, since the relation between the bottom 29 of the hopper C and the path of said bars, on the lower reaches of the chains 37, is fixed. The rails 38, being shifted in unison with the chains 37, function uniformly in the various adjustments.

Suitable chutes or conveyors (not shown) may be employed to conduct grain to the upper receiving end of the screen 18 and to carry the grain and screenings from the delivery ends of said screen 18 and the hopper C.

Changes in the specific form of my invention, as herein disclosed, may be made within the scope of what is claimed without departing from the spirit of my invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In a device of the class described, a frame, an inclined screen on the frame, supports traversing the frame, tappets pivoted on said supports and adapted to swing upward against the under side of said screen, each tappet including a depending cam member, a bracket at either end of the frame, transverse shafts mounted in said brackets, means for turning one of said shafts, a pair of gears on each shaft, spaced endless chains mounted on said gears, transverse bars carried by said chains, a hopper supported by said brackets and arranged to receive screenings from said screen, supporting slides for the upper reaches of said chains, said slides being mounted on said hopper, the bars, on the upper reaches of said chains, being adapted to engage the cam members of the tappets and cause said tappets to strike the screen, the bars on the lower reaches of said chains being adapted to sweep the screenings from said hopper, said brackets being adjustable vertically to change the path of said bars and thereby alter the force of the impacts of said tappets against said screen.

2. In a device of the class described, a frame, an inclined screen on the frame, supports traversing the frame, tappets pivoted on said supports and adapted to swing upward against the under side of said screen, each tappet including a depending cam member, a bracket at either end of the frame, transverse shafts mounted in said brackets, means for turning one of said shafts, a pair of wheels on each shaft, spaced endless chains mounted on said wheels, transverse bars carried by said chains, supporting slides for the upper reaches of said chains, said bars being adapted to engage the cam members of the tappets and cause said tappets to strike the screen, said brackets being severally adjustable to alter the force of the impacts of said tappets against said screen.

3. In a device of the class described, a frame, an inclined screen on the frame, supports traversing the frame, tappets pivoted on said supports and adapted to swing upward against the under side of said screen, a bracket at either end of the frame, transverse shafts mounted in said brackets, means for turning one of said shafts, a pair of wheels on each shaft, spaced endless chains mounted on said wheels, transverse bars carried by said chains, said bars being adapted to engage the tappets and cause them to strike the screen, one of said brackets being adjustable vertically to alter the force

of the impacts of said tappets against said screen.

4. In a machine of the class described, a main frame, a screen on said frame, tappets
5 beneath the screen arranged to strike the under side thereof, a hopper and rotors beneath said screen, an endless tappet actuator mounted on said rotors, and means for driving the actuator, the upper reach of said
10 actuator serving to operate the tappets, and the lower reach thereof to eject screenings from the hopper.

5. In a device of the class described, a frame, an inclined screen on the frame,
15 tappets arranged to strike the under side of said screen, a hopper beneath the screen to catch the screenings therefrom, means to actuate the tappets and also eject the contents of said hopper therefrom, and mechanism for adjusting said actuating means
20 and hopper simultaneously, whereby the

action of the tappets is altered and the operation of said actuating means, as an ejector, is maintained.

6. In a device of the class described, a 25 frame, an inclined screen on the frame, tappets arranged to strike the under side of said screen, a hopper beneath the screen to catch the screenings therefrom and means to actuate the tappets and also eject the contents of said hopper therefrom. 30

7. In a machine of the class described, a frame, an inclined screen on the frame, tappets arranged to strike the under side of said screen, and means for actuating the 35 tappets, said actuating means being adjustable to uniformly or progressively alter the action of said tappets.

In testimony whereof, I have signed my name to this specification.

FRANK C. BLODGETT.