

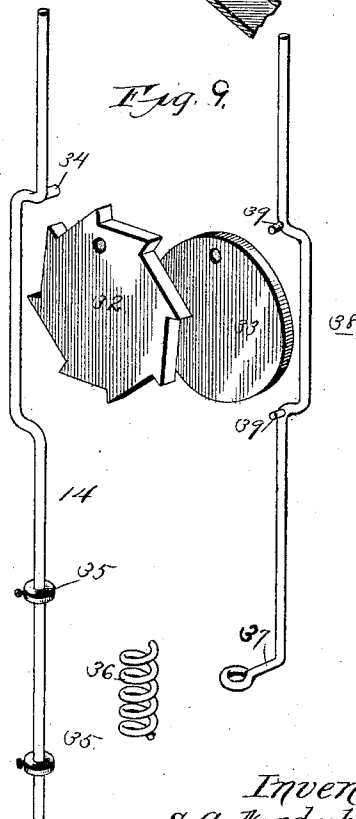
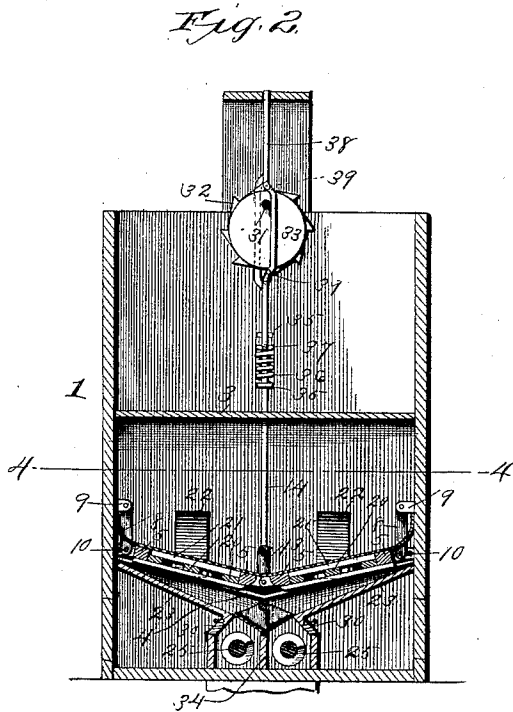
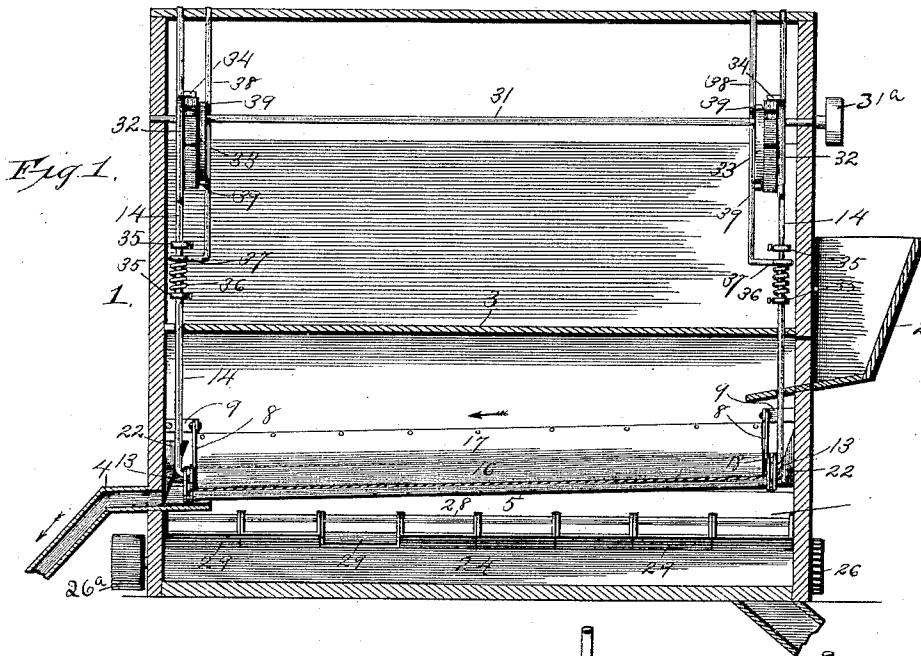
(No Model.)

3 Sheets—Sheet 1.

S. A. NORDYKE.
BOLTING MACHINE.

No. 461,843.

Patented Oct. 27, 1891.



Witnesses:

W. J. Thorpe.
J. L. Condon

Inventor.
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Wigdon & Wigdon
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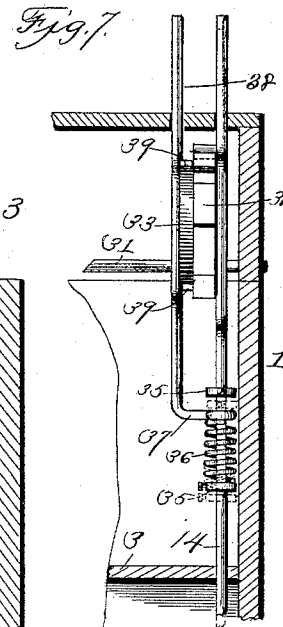
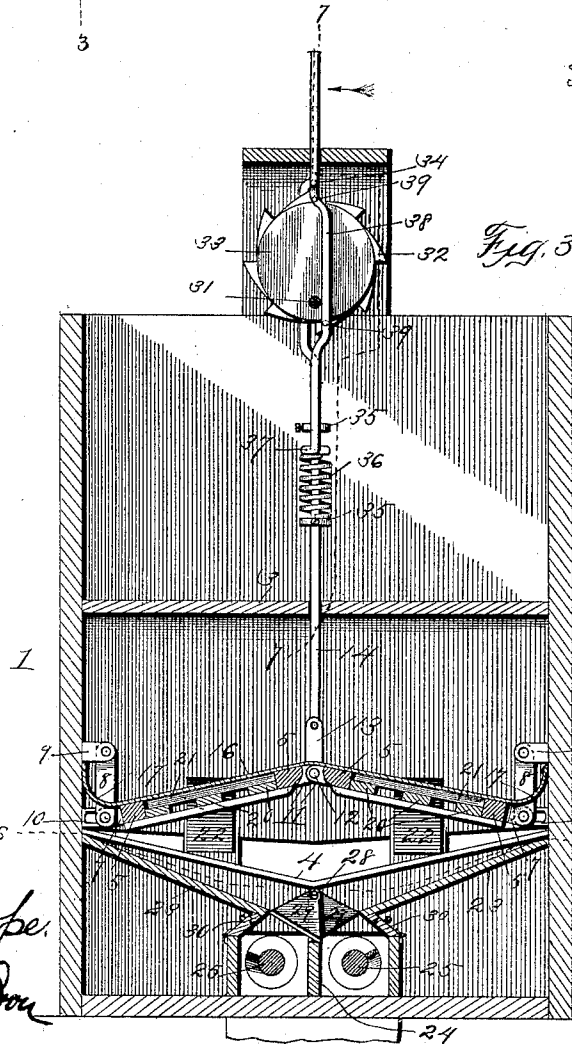
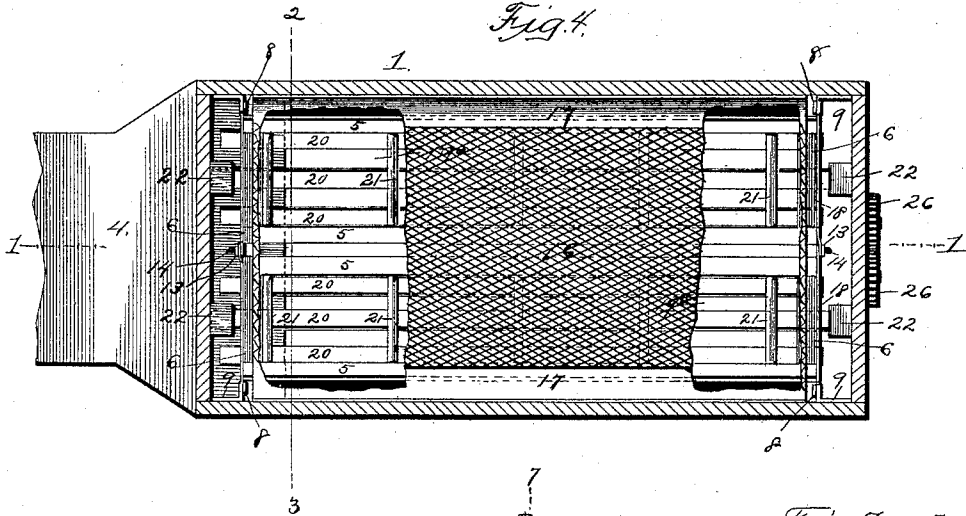
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(No Model.)

3 Sheets—Sheet 3.

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Fig. 5.

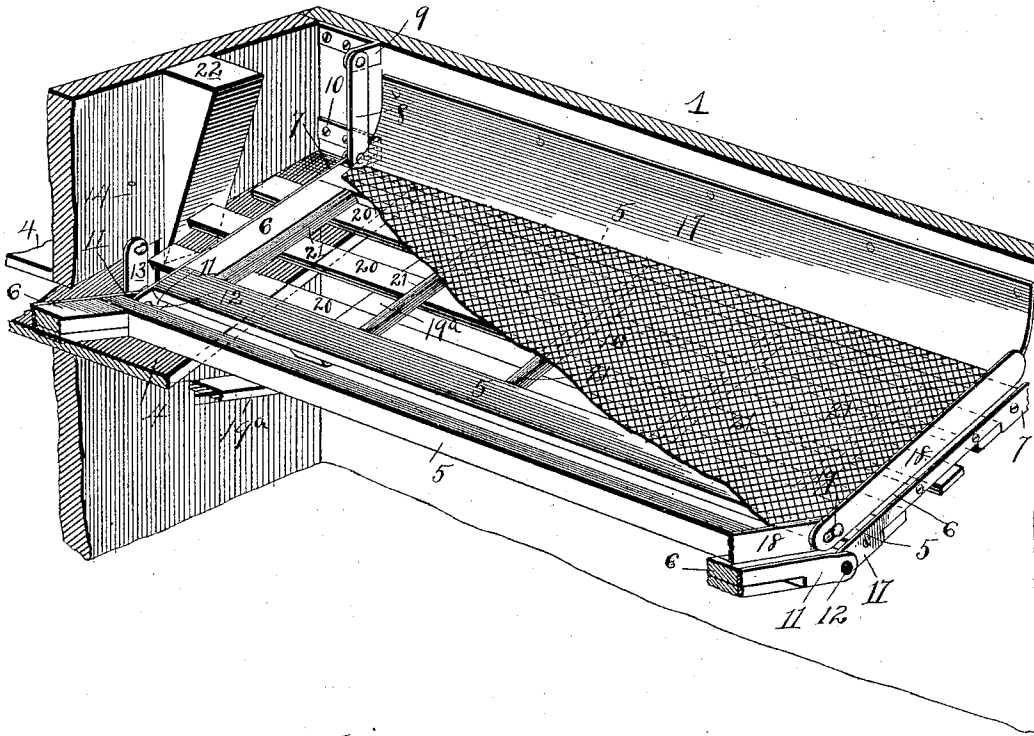


Fig. 6.

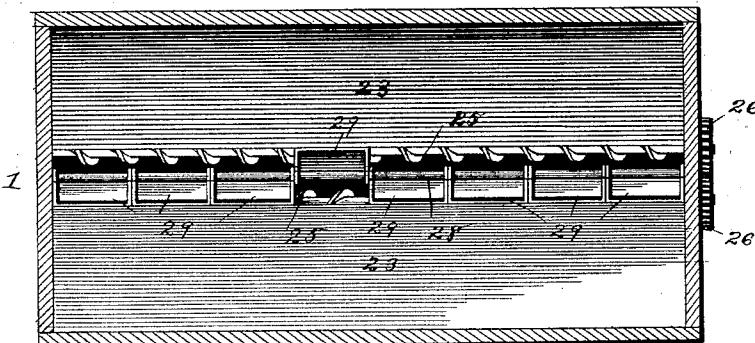
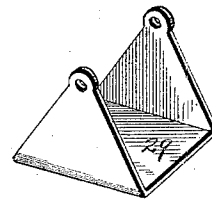


Fig. 8.



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UNITED STATES PATENT OFFICE.

SYLVANUS A. NORDYKE, OF KANSAS CITY, KANSAS.

BOLTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 461,843, dated October 27, 1891.

Application filed June 1, 1891. Serial No. 394,724. (No model.)

To all whom it may concern:

Be it known that I, SYLVANUS A. NORDYKE, of Kansas City, Wyandotte county, Kansas, have invented certain new and useful Improvements in Bolting-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to machines for separating different sizes of particles of various ground grains, such as wheat, corn, oats, rye, barley, buckwheat, &c.; also, for removing foreign substances therefrom, such as sticks, straw, dirt, cheat, and other impurities; and the object of my invention is to produce a simple, durable, and comparatively inexpensive form of bolting-machine which shall be rapid and effective in its operation, and which shall also operate without waste of material and automatically clean or clear its screens or meshes during the operation of the machine.

To the above purposes my invention consists in certain peculiar and novel features of construction and arrangement, as hereinafter described and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a central vertical longitudinal section of my improved bolting-machine on the line 1 1 of Fig. 4. Fig. 2 is a transverse vertical section of the same on the line 2 3 of Fig. 4, the bolting-screens being shown in lowered position. Fig. 3 is a similar sectional view on said line 2 3, showing the sieves in raised position. Fig. 4 is a horizontal cross-section of the machine on the line 4 4 of Fig. 2. Fig. 5 is a perspective view of the screens and adjacent operative parts of the machine-frame, a portion of the sifting-screen being broken away and removed to more clearly show the construction of the screens. Fig. 6 is a horizontal cross-section of the same on the line 6 6 of Fig. 3. Fig. 7 is a transverse vertical section of the machine on the line 7 7 of Fig. 3, the parts being shown on an enlarged scale. Fig. 8 is a detached perspective view of one of the movable deflectors for preventing mixture of useful material with waste material. Fig. 9 comprises detached

perspective views of the ratchet-disk and the plain disk, and also of the rods actuated thereby.

In the said drawings, 1 designates the framework or casing of the machine, said framework or casing being preferably of oblong rectangular form, and 2 designates a feeding-hopper, which is preferably located at one end of the machine, adjacent to the higher end of the inclined screens, to be hereinafter described. Within this casing 1 is placed a horizontal partition 3, which divides the casing into an upper and a lower compartment, as shown, while at the opposite end of the casing from that to which the hopper 2 is attached is placed a discharge-spout 4, protruding from the lower part of the casing. In the lower compartment of this casing are located two longitudinally-extending screen-frames, which are inclined downwardly from those ends to the hopper end of the casing or to those ends which are adjacent to the spout end of said casing. Each of these screen-frames consists of two parallel side pieces 5, connected together at their ends which are adjacent by two transverse end pieces 6. At the ends of their outer sides these screen-frames are provided with outwardly-extending metal brackets 7, to the outer ends of which are pivotally connected the lower ends of vertical links 8. The upper ends of these links are pivotally connected to the inner ends of L-shaped brackets 9, which are secured to the inner surfaces of the sides of the casing 1 at the ends thereof. The pivots which connect the outer ends of the brackets 7 to the lower ends of the links 8 also pass through elongated slots in the inwardly-extending arms of L-shaped brackets 10. Said brackets extend horizontally inward from the inner surfaces of the sides of the casing at the ends thereof and serve to prevent any longitudinal vibrations of the screen-frames. At the ends of their inner or adjacent sides these screen-frames are provided with inwardly-extending metal arms 11, through the inner overlapping ends of which pass bolts 12, which also pass through the lower ends of links 13. The upper end of each of these links is connected to the lower end of a vertical rod 14, to be hereinafter more fully described. To the upper surfaces of the side pieces of the screen-frames are

secured meshings 16 of open or foraminous fabric, woven wire, perforated metal, or other similar foraminous material of finer or coarser mesh, according to the character and condition of the grain to be operated upon, and to the upper sides of the outer side pieces of said screen-frames are secured strips 17 of heavy fabric—such as canvas or other flexible and at the same time impervious material—the outer edges of said strips being securely attached to the inner surfaces of the sides of the casing 1, and thus closing the spaces between the outer sides of the screens and the inner surfaces of the sides of the casing, so that no material can drop through at these points. Upon the upper sides of the cross-pieces 6 at the higher ends of the screens are secured vertical guards 18, the inner ends of said guards being slotted to receive a rivet or bolt 19, and the said guards serving to prevent any incoming grain from the hopper 2 from escaping over the higher ends of the screens.

It is to be observed that the inner end of the discharge-spout 4 of the machine projects inwardly beneath the lower ends of the screens, so that no waste shall occur as the bolted grain passes out of the machine from the screens.

Immediately beneath the meshing or perforated material 16 of each screen-frame and resting upon cross-bars 19^a of said screen-frames are a number of longitudinal bars 20, to the upper sides of which are secured a suitable number of transverse scrapers or clearers 21, which lie in direct contact with the under sides or surfaces of the meshings or perforated portions 16, and which by longitudinally-reciprocating movements serve to keep the meshes or perforations open and free from accumulated impurities. These reciprocating movements of the scrapers are produced by vertical rigid cams or inclines 22, which are secured to the inner surfaces of the opposite ends of the casing, the working surfaces of the inclines at one end of the machine extending downward and inward and those of the other set upward and inward. The working surfaces of these inclines or cams are engaged by the protruding ends of certain of the longitudinal pieces 20, and the arrangement is such that as the screens rise and fall, as hereinafter described, the inclines shall force the scrapers longitudinally of the screens, first in one and then in the opposite direction longitudinally.

The flooring 23 of the machine inclines downwardly and inwardly from the sides toward the middle of the machine, and at the middle is formed a longitudinal compartment, which is located in the bottom of the casing 1 beneath said flooring, and which is divided into two parts by a vertical longitudinal partition 24. In each of these compartments is located a spiral conveyer 25, the shafts of which are provided at one end of the casing with intermeshing gear-wheels 26, and one of

which shafts is provided at the opposite end of the machine with a pulley 26^a, to which power is applied through a suitable driving-belt. Immediately above the partition 24 is mounted a horizontal longitudinal rod 28, to which are pivotally suspended a number of deflectors 29, each of said deflectors being of substantially U form, having triangular sides, through the apexes of which the rod 28 passes loosely. The scrapers 21 carry off the dirt and other finer impurities from the screens, and such impurities fall upon the floor 23, from whence they enter one or another of the compartments containing the conveyers, according as the deflectors 29 are set. If a break or a weak spot should occur in any part of either screen, the deflector immediately beneath such break or weak spot is set oppositely from the others, and the escaping useful material will be carried to the opposite conveyer and discharged from the machine for rescreening or rebolting. In order to afford access to these deflectors, doors 30 are hinged at one side of the conveyer-compartments, and access to the doors is had through a suitable opening in the lower part of the corresponding side of the casing.

In the upper part of the machine-casing is mounted a horizontal longitudinal revoluble shaft 31, which carries at one end a pulley 31^a, to which power is applied through a suitable driving-belt. Upon each end of this shaft, just within the casing 1, is rigidly secured a ratchet-disk 32, and closely adjacent thereto a disk 33, having a plain periphery. These two disks at each end of the shaft are set eccentrically upon the shaft and at the same side thereof, as shown. The rods 14 above referred to are bent laterally at their upper ends to pass by the shaft 31, and at their upper ends these rods pass through the top of the casing 1. Each of these rods 14 carries a pin or stud 34, which engages the surfaces of the teeth of ratchet-disk 32, the direction of rotation of the shaft being such that the pin or stud travels from the inner to the outer end of one tooth and then drops downward upon the inner part of the next tooth. It will thus be seen that as the shaft 31 rotates the eccentric ratchet-disks gradually elevate and depress the rods 14, and that the teeth of the ratchet-disks cause said rods to intermittently drop slightly downward while the rods are rising. Corresponding rising and falling and vertically-vibrating movements of the screens are therefore produced, so that the material on said screens is thoroughly agitated and also kept in a jolted condition while passing over the screens. Each rod 14 carries two adjustable stops 35, between which is interposed a coiled spring 36, which surrounds the rod. Between the upper end of each of these springs and the under side of the corresponding upper stop 35 is interposed the lower end 37 of a second rod 38, the said lower end 37 being bent to surround the rod 14. This rod 38 is bent lat-

erally at its upper portion to clear the shaft 31 and at its upper extremity passes through the top of the casing 1. Two pins or studs 39 project laterally from the rod 38, so as to come into contact with the upper and lower surfaces of the plain periphery of the corresponding eccentric disk 33. Thus as the shaft 31 rotates the rods 38 steadily rise, the upper ends of the springs 36 being pressed intermittently against the lower ends 37 of the rods 38 and then allowed to expand. This expanding action of the springs 36 assists the intermittent depressions of the screens by gravity, and thus hastens such intermittent depressions, so as to impart sharp jolting movements to the screens, by means of which the grain is tossed and thoroughly agitated and its impurities are effectively separated from the mass of the grain.

From the above description it will be seen that I have produced a simple, durable, and inexpensive machine which operates with great rapidity and which is adapted to economically bolt or grade a great variety of grain. It is also to be observed that this machine is adapted for use as a scalper to be used on brake-rolls.

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

1. An improved bolting-machine comprising a pair of vertically-movable screens pivoted together at their adjacent edges, and a rod connected to the pivotal end of the screens and engaging an eccentric revoluble ratchet-wheel, substantially as set forth.

2. An improved bolting-machine compris-

ing a pair of vertically-movable screens pivoted together at their adjacent edges, a pair of rods, one of which is connected to the pivotal end of the screens, while the other surrounds said first-named rod, a spring carried by the first-named rod, a revoluble plain disk engaged by the second-named rod, and a revoluble eccentric ratchet-wheel for engaging and raising the first-named rod, substantially as set forth.

3. An improved bolting-machine comprising a pair of vertically-movable screens pivoted together at their adjacent edges, a flexible strips interposed between the outer edges of the screens and the inner surfaces of the casing, substantially as set forth.

4. An improved bolting-machine comprising a pair of vertically-movable screens pivoted together at their adjacent edges, a longitudinally-movable scraper-frame mounted beneath each screen, and oppositely-extending inclines mounted upon opposite ends of the machine-casing and engaging the scraper-frames, substantially as set forth.

5. An improved bolting-machine comprising a pair of vertically-movable screens pivoted together at their adjacent edges, hangers pivotally connecting the outer edges of the screens to the inner sides of the casing, and slotted hangers engaging the pivots of the screens, substantially as set forth.

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

SYLVANUS A. NORDYKE.

Witnesses:

JNO. L. CONDRON,
G. Y. THORPE.