

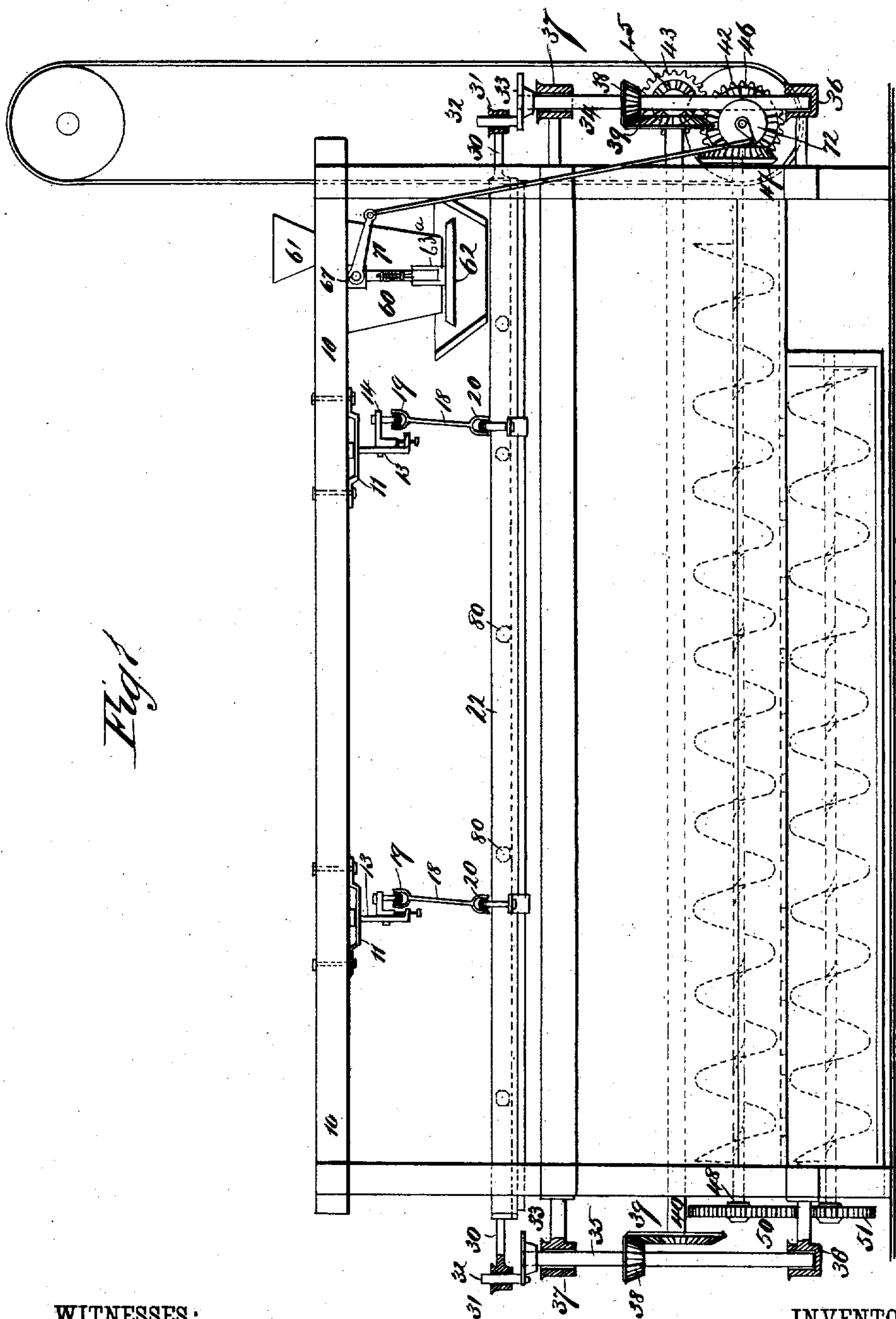
(No Model.)

2 Sheets—Sheet 1.

J. JOHNSTON.  
FLOUR BOLT.

No. 403,757.

Patented May 21 1889.



WITNESSES:

*F. M. Ardle.*  
*J. M. Newley.*

INVENTOR:

*J. Johnston*  
BY *Munn & Co*  
ATTORNEYS.

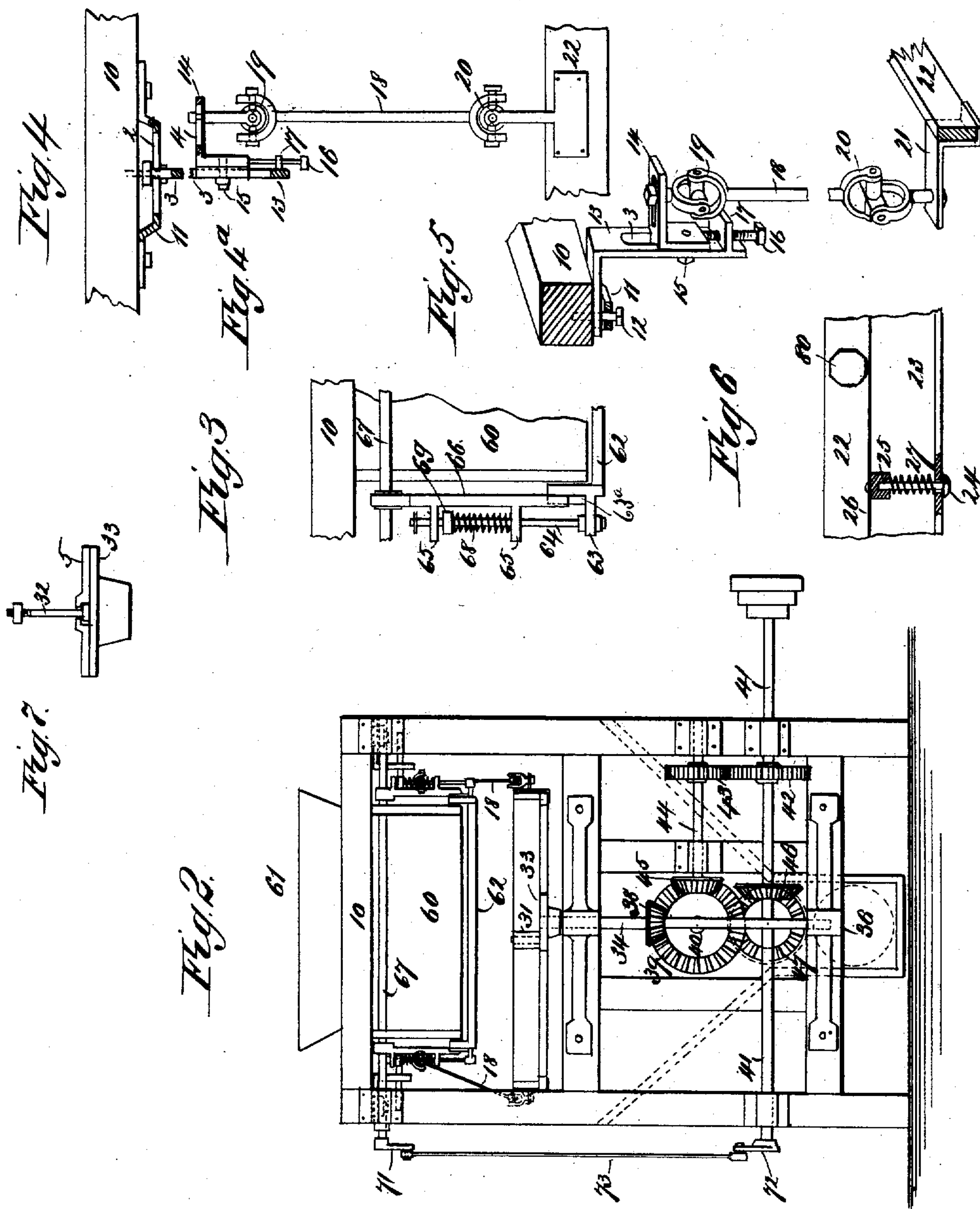
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# UNITED STATES PATENT OFFICE.

JOHN JOHNSTON, OF NEENAH, WISCONSIN.

## FLOUR-BOLT.

SPECIFICATION forming part of Letters Patent No. 403,757, dated May 21, 1889.

Application filed July 20, 1887. Serial No. 244,831. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN JOHNSTON, of Neenah, in the county of Winnebago and State of Wisconsin, have invented a new and  
5 Improved Flour-Bolt, of which the following is a full, clear, and exact description.

This invention relates to flour-bolts; and it consists in the novel features hereinafter described and claimed.

10 Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a side view of my improved  
15 flour-bolt, parts being shown in section. Fig. 2 is an end view of the same. Fig. 3 is an enlarged detail view illustrating the construction of the adjustable feeding device. Fig. 4 is an enlarged detail view, in partial  
20 section, illustrating the construction of the upper portion of the bolt-hanging attachments; and Fig. 4<sup>a</sup> is a similar view of the lower portion of the same, but in a position at right angles to Fig. 4. Fig. 5 is a perspective view of the construction illustrated in  
25 Figs. 4 and 4<sup>a</sup>. Fig. 6 is a sectional detail view illustrating the construction of the bolt-ing-frame, one of the clearing-balls used in connection with said frame being represented  
30 in connection therewith; and Fig. 7 is a detail view of one of the crank-disks.

In the drawings, 10 represents the main frame of the machine, to the upper portion of which frame there are secured four brackets,  
35 11, formed with longitudinal slots 2, adapted to receive bolts 12, which bolts engage with hanger-arms 13, said arms extending inward at right angles to the longitudinal strips of the frame 10 to be carried downward in per-  
40 pendicular lines, the perpendicular sections of the arms being slotted, as shown at 3, to provide for the adjustable connection of the hanger-brackets proper, which are shown at 14, said hanger-brackets being secured to the  
45 perpendicular sections of the arms 13 by bolts 15, and in order that there may be a direct support for the hanger-brackets, I provide set-screws 16, which engage with apertures that are formed in lugs or ears 17, that extend in-  
50 ward from the perpendicular sections of the arms 13.

The hanger-brackets 14 are slotted at 4 to

provide for the adjustment toward or from the main frame of the hangers 18, which said hangers are provided with upper universal  
55 joints, 19, and lower universal joints, 20, the lower sections of the joints 20 being connected to brackets 21, that are secured to the sides of the sieve-frame 22. This sieve-frame 22 is provided with three slats, 23, that are aper-  
60 tured to provide for the passage of screws 24, which engage with blocks 25, that are secured to the bolting-cloth 26, the cloth being normally upheld by springs 27, that are coiled  
65 about the screws 24 and abut against the slats 23 and the blocks 25, this arrangement permitting a certain depression or lowering of the cloth, but preventing any upward move-  
ment beyond the normal line.

To each end of the sieve-frame 22, I secure  
70 arms 30, the ends of which are provided with sockets 31, that are adapted to receive crank-pins 32, said pins being mounted in slides 5, that are formed in the crank-disks 33. Said crank-disks 33 are carried by vertical shafts  
75 34 and 35, which shafts are stepped in bearings 36 and guided by upper bearings, 37. The shafts 34 and 35 carry bevel-pinions 38, that engage with bevel-gears 39 carried by a  
80 shaft, 40.

Across the end of the machine the main  
driving-shaft 41 is mounted, and this shaft carries a spur-gear, 42, which engages a smaller  
spur-gear, 43, that is carried by an upper  
85 shaft, 44, which said upper shaft in turn carries a bevel-pinion, 45, that engages the bevel-gear 39, so that as the shaft 41 is revolved motion will be transmitted therefrom to the  
shaft 40, and from said shaft to the shafts 34 and 35, thus imparting a similar motion to said  
90 shafts 34 and 35. The shaft 41 also carries a bevel-gear, 46, which engages a similar gear, 47, that is carried by an upper conveyer-shaft, 48, this shaft 48 carrying a gear, 50, which engages a gear, 51, that is carried by a lower  
95 conveyer-shaft.

Above the sieve-frame I mount a feeder, 60, which is fed from a hopper, 61, and beneath this feeder I adjustably mount a swinging  
plate, 62, said plate being provided with lugs  
100 63, which hold upwardly-extending rods 64, that pass through apertured lugs 65, formed upon arms 66, that are rigidly connected to a rock-shaft, 67. Between the lugs 65, I arrange



springs 68, one end of these springs abutting against the lower lugs, while the upper ends abut against adjusting-nuts 69, the arrangement being such that by turning down the nuts the tension of the springs will be increased and the plate 62 will be held closer to the bottom of the feeder-box.

To the end of the shaft 67, I connect a crank-arm, 71, and this crank-arm in turn is connected by a rod, 73, with a crank-arm, 72, that is carried by the shaft 41, the crank-arm 72, however, being much shorter than the arm 71, so that as the shaft 41 is revolved a partial rotary motion will be imparted to the shaft 67. In order that the sieve may be cleared, I place upon it a number of polygonal balls, 80, the number of these balls varying with the character of the material that is being operated upon.

By mounting the sieve as above described I provide for the movement of the sieve in any direction desired, and thus render it possible for the sieve to be carried to and fro in an elliptical path when the shafts 34 and 35 are revolved; and by making the hanger-connections as above described I provide for a proper adjustment of the sieve-frame, and by adjustably connecting the crank-pins to their disks I am able to vary the path through which the sieve is carried to meet the requirements of the particular material that is being operated upon.

In a companion application, Serial No. 255,404, I show and describe a shaking-bolt having some of the general features of this. In said application I have claimed the swinging hopper apron or plate more broadly than in this, and also claimed specifically the different means therein shown and described for suspending and adjusting said apron or plate. I have likewise described and claimed means for imparting a circular or elliptical movement to the sieve.

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

1. The combination of the frame 10, the slotted brackets 11, the bolts 12, the angular arms 13, having their horizontal arms sup-

ported by said bolts, and having their vertical arms slotted and provided with lugs 17, having vertical set-screws 16, the angular brackets 14, adjustable on the slotted arms above the set-screws, on which they rest, and the sieve having brackets 21 on its sides, with the hangers 18, provided with universal joints connecting them to the brackets 14 and 21, respectively, substantially as set forth.

2. The combination, in a flour-bolt with the feeder, of depending swinging arms at opposite sides thereof, a plate at the lower ends of said arms, vertically-movable connections between said plate and arms, springs allowing a yielding movement between the arms and connections, and means for oscillating said plate, substantially as set forth.

3. The combination, with the feeder, of the depending slotted swinging arms at opposite sides thereof, provided with outward-projecting side lugs, a plate extending under the discharge-end of the feeder, provided with rods extending upwardly through the said lugs and sliding freely therein, and lugs 63<sup>a</sup>, engaging the slotted arms, and the springs supporting the rods yieldingly, substantially as set forth.

4. In a flour-bolt, the combination, with the sieve and its frame, of the apertured slats extending across the under side of said frame, blocks on the under side of the sieve, screws or pins extending from said blocks down through the slat-apertures, and springs on said screws or pins, substantially as set forth.

5. In a flour-bolt, the combination, with the sieve having blocks on its under face, and the frame to which the sieve is secured having apertured slats on its lower side, of the headed screws passing up through the apertures in the slats into the said blocks, the heads of the screws resting against the lower surfaces of said slats and limiting the upward movement of the screws and sieve, and the springs on the screws between the blocks and slats, substantially as set forth.

JOHN JOHNSTON.

Witnesses:

OLE. O. MYHRE,  
EVEN JOHNSON.