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J. FRASER & A. G. MATHER.  
DRIVING MECHANISM FOR SEIVE BOLTING MACHINES.

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NO MODEL.

Fig. 1.

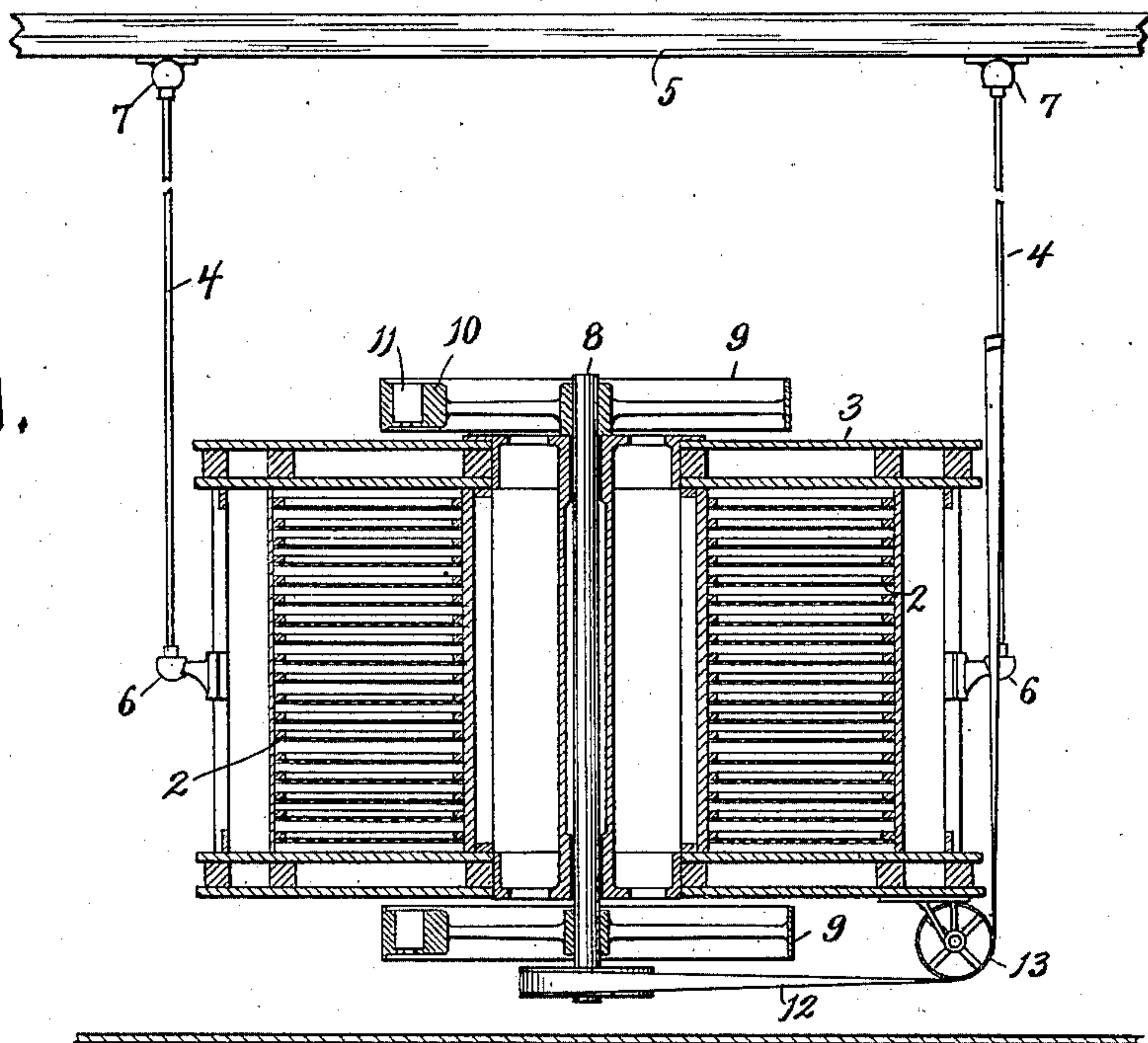
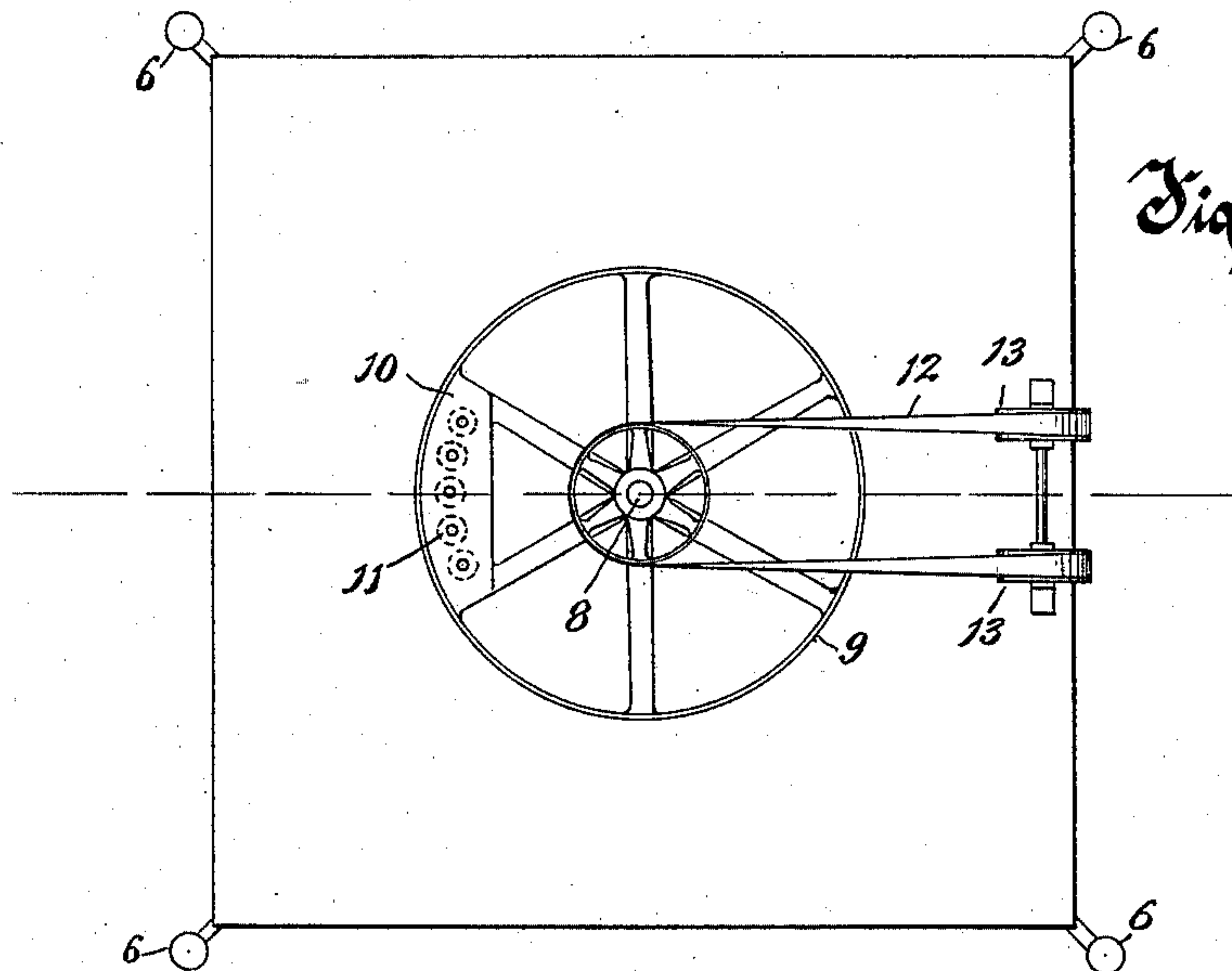


Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## DRIVING MECHANISM FOR SIEVE BOLTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 756,950, dated April 12, 1904.

Application filed January 5, 1903. Serial No. 137,813. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN FRASER and ALLAN G. MATHER, of Milwaukee, Milwaukee county, Wisconsin, have invented new and useful Improvements in Driving Mechanism for Sieve Bolting-Machines, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

In machines for bolting flour it is common to mount a plurality and even a large number of sieves in a frame, and this frame is by some means given a lateral movement to disturb or shake the material, according to its fineness, and cause it to pass downwardly through the sieves, arranged one above another, whereby the flour is separated from the bran or other foreign matter and into grades as to fineness, &c. Such sets of sieves so mounted in a proper frame having the capability of a gyrating movement are properly called "sieve-bolters" or "sieve bolting-machines." It is important to give these sieve-bolters a quick and constant gyratory motion, and the sieves should be constantly maintained in a horizontal position or very close to a horizontal position.

Our invention relates to improved means for giving a sieve-bolter a proper shaking or disturbing movement and at the same time maintain the sieves in horizontal position. Other advantages of our novel mechanism are incidental to the foregoing.

The invention consists of the mechanism, its parts, and combinations of parts, as herein described and claimed, or the equivalents thereof.

In the drawings, Figure 1 illustrates our improved mechanism in connection with a sieve-bolter, mostly in section. Fig. 2 is a bottom diagrammatical view of the mechanism and sieve-bolter.

In the drawings, 2 2 represent two series of sieves mounted one above the other in a frame 3. This sieve-carrying frame is of considerable height and is supported by some means by which it is capable of and is adapted for being gyrated. For so supporting the sieve-frame it may be suspended on rods 4 4,

depending from some supporting means, as a beam 5. The connections between the frame and the rod must be movable and are advisably in the form of ball-and-socket or other universal joints 6 6. Also it is advisable to have the rods 4 4 connected to the beam or beams 5 5 by universal-joint connections 7 7. In any event the support of the frame 3 must be such as to maintain the horizontal positions of the sieves and as to permit of its free movement laterally in all directions, as our improved means are adapted to give the frame its gyratory motion in and by a circular or oval movement in a horizontal plane.

For gyrating or driving the sieve-bolter we provide a vertically-disposed straight shaft 8, mounted medially and advisably centrally of the frame, the shaft passing through and having its bearing in the frame. On this shaft 8 we fix two actuating-loads, advisably in the form of unbalanced wheels 9 9, one located above and the other below the frame 3. Incidentally these wheels are located, respectively, above and below the attachments of the rods 4 4 to the frame 3, and we deem it advisable that this arrangement of the parts should be observed. Each of the wheels 9 is loaded at one side of its axis conveniently by means of a load-block 10, fixed on the wheel near its rim. These loads on the two wheels are placed at one and the same side of the shaft 8. These load-blocks 10 are also advisably each provided with weight-pockets 11 11, adapted to receive therein additional loading, as may be necessary or desirable. A driving-belt 12 runs on a pulley on the shaft 8, and thence about guide-pulleys 13 13, mounted on the frame 3, and thence to a source of power.

In operation as the shaft 8 rotates, carrying with it the wheels 9 9, the loads 10 10 are shifted from side to side of the shaft 8 and by their centrifugal action carry the sieve-bolter laterally, with the loads 10 10, away from the vertical axis or center of gravity of the sieve-bolter, the result being that the sieve-bolter is moved rapidly around in a circular or oval direction in a horizontal plane, thus giving it the required disturbing movement.

If there were a load 10 only above or below



the sieve-frame 3, the result would be that the sieve-frame by the revoluble movement of this single load, either above or below it, would be given greater centrifugal momentum at 5 this upper or lower side than at the other side, (top or bottom,) at which there was no load, and thereby the frame would be not only carried around in a circular or oval direction in a generally horizontal plane, but the sieve- 10 frame would be tilted somewhat obliquely, thus putting the sieves in an undesirable inclined position and producing a harmful vibration in the building.

The employment of a load above and below 15 the sieve-frame obviates this undesirable result.

Loading can be put in the pockets 11 either at the top or at the bottom to adjust and balance one load with reference to the other load 20 or to balance the loading of the sieves by the material delivered to them to be operated on. By this means the machine can be adjusted to secure the most desirable action of the sieve-bolter and the most favorable results there- 25 from.

The amount of load carried by the pockets 11 can be varied in order to change the throw of the sieve-frame, a light load causing it to travel on a small circle and a heavy load caus- 30 ing the machine to describe a larger circle. This feature is of very great importance, as the action of the sieves on the stock handled can be varied without changing the speed of rotation—an object not attainable in any fixed 35 crank-machine, in which in order to change the bolting action it is absolutely necessary to increase or diminish the speed of rotation.

The wheel form of the operating device is deemed the most desirable form of construc- 40 tion because of the strength of the support and protection of the load readily secured thereby; but any known equivalent means for supporting and adjusting the loads, as by radial arms with adjustable loads thereon, could 45 be employed, though not recommended.

What we claim as our invention is—

1. In a sieve bolting-machine, a frame of considerable height adapted to hold a plurality of horizontally-disposed sieves therein one 50 above the other, four or more rods jointed to and depending from a support and attached by jointed connections to the frame at distant points thereof and medially of the height of the frame and so as always to maintain parallelism with each other and the horizontal 55 positions of the sieves, a vertical shaft mounted revolubly in and centrally of the frame, unbalanced loads on the shaft at one and the same side thereof above and below the frame, and means for rotating the shaft while per- 60 mitting a gyration of the frame and its load.

2. In a sieve bolting-machine, a frame of considerable height adapted to hold a number of horizontal sieves therein one above another in a plurality of series, four or more 65 rods jointed to and depending from a support and attached by jointed connections to the frame at distant points thereof and medially of the height of the frame and so as always to maintain parallelism with each other and 70 the horizontal positions of the sieves, a vertical shaft mounted revolubly in and centrally of the frame, wheels on the shaft respectively above and below the frame said wheels being loaded at one and the same side of the shaft 75 and having a plurality of pockets for receiving therein additional loading material whereby the unbalanced load can be added to as desired, a pulley on the shaft, idle pulleys mounted on the frame near its lateral side and 80 a belt running on the pulleys adapted to rotate the shaft.

In testimony whereof we affix our signatures in presence of two witnesses.

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