

(No Model.)

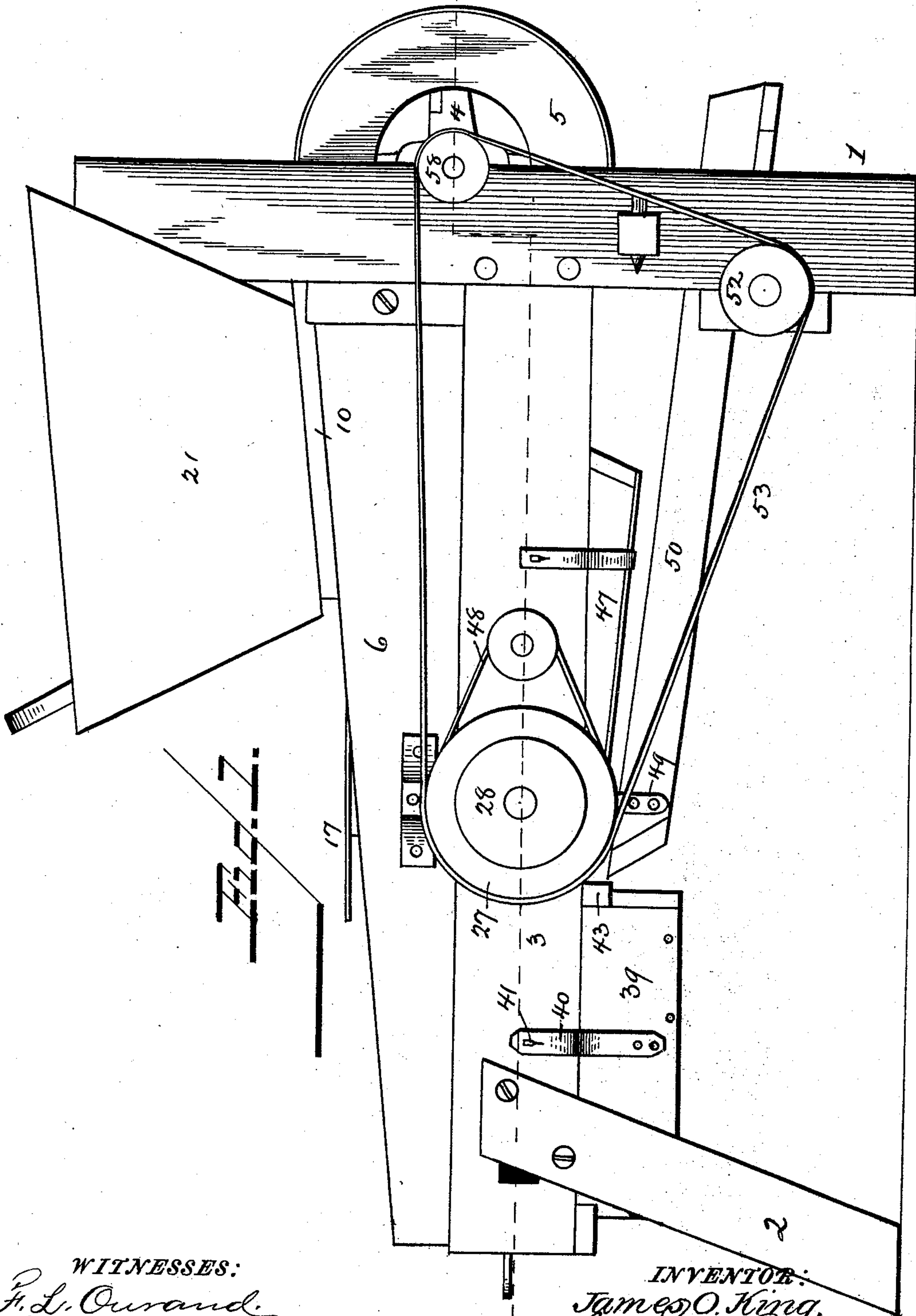
3 Sheets—Sheet 1.

J. O. KING.

GRAIN CLEANING AND SEPARATING MACHINE.

No. 506,513.

× Patented Oct. 10, 1893.



WITNESSES:

F. L. Ourand.
J. L. Bloomb

INVENTOR:

James O. King,

By Louis Daggner & Co
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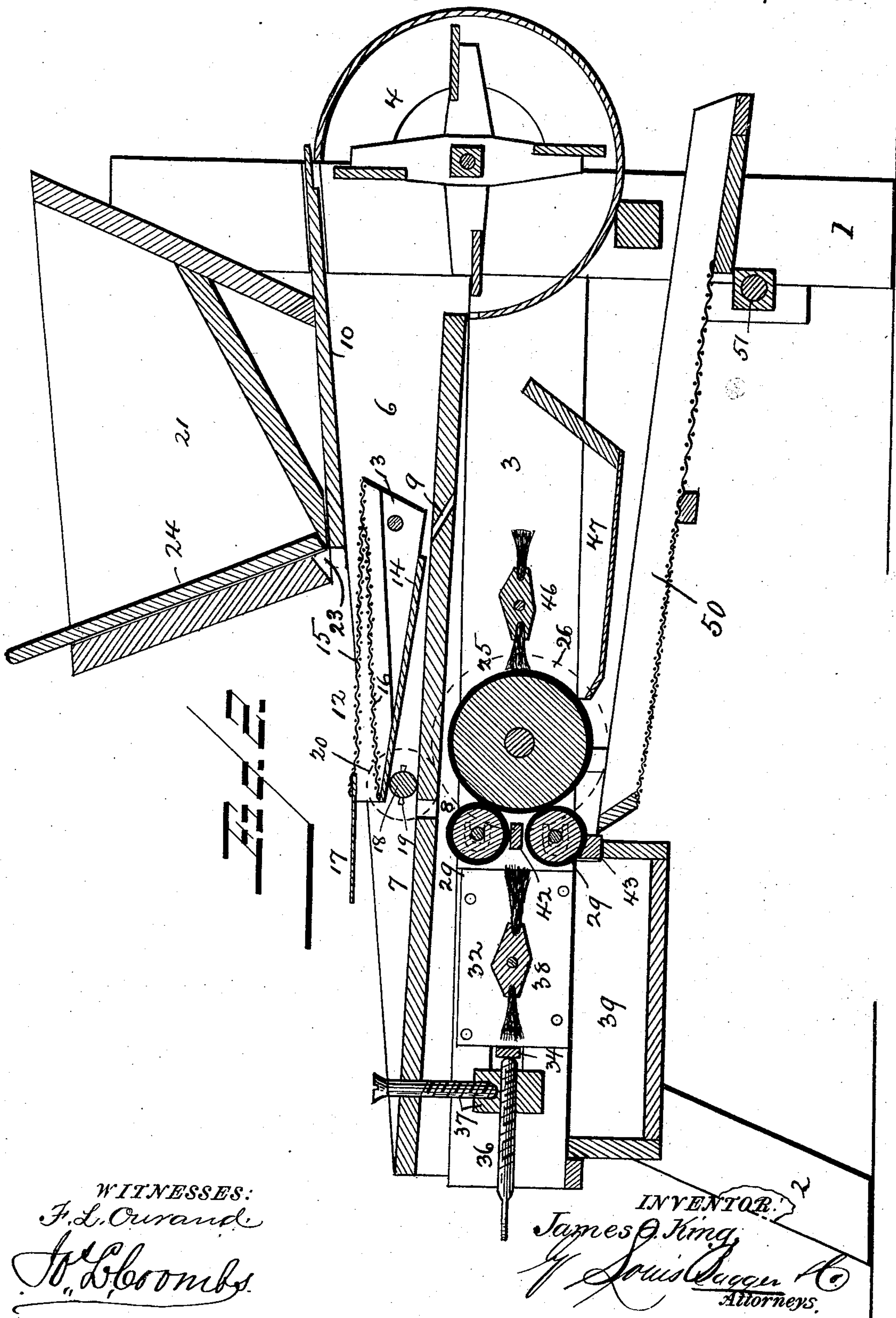
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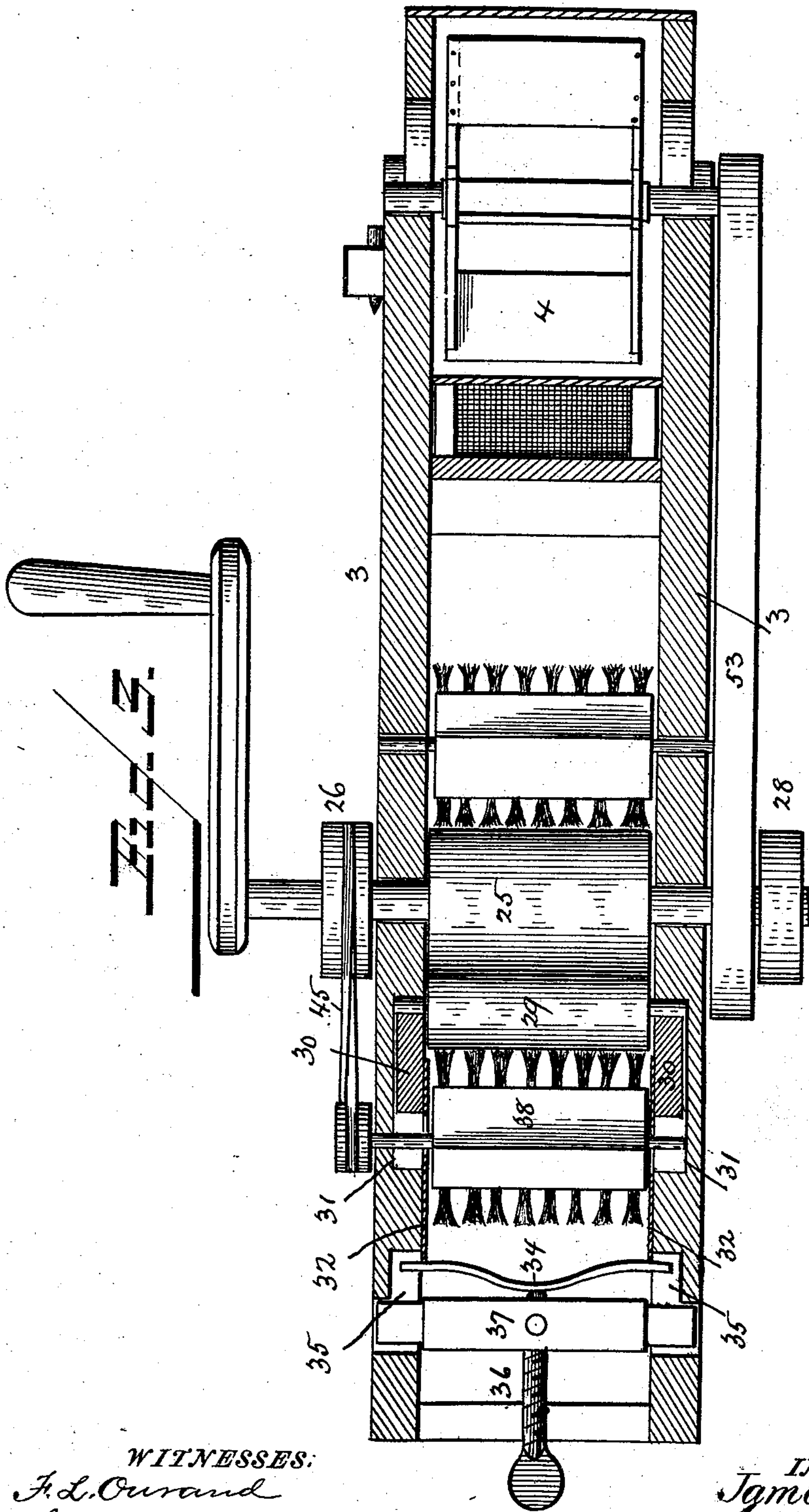
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UNITED STATES PATENT OFFICE.

JAMES O. KING, OF HARVEY, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF THREE-FOURTHS TO AUGUSTUS W. L. HAGER, OF TRIANGLE, AND ROBERT B. BOONE, OF DURHAM, NORTH CAROLINA.

GRAIN CLEANING AND SEPARATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 506,513, dated October 10, 1893.

Application filed April 28, 1893. Serial No. 472,227. (No model.)

To all whom it may concern:

Be it known that I, JAMES O. KING, a citizen of the United States, and a resident of Harvey, in the county of Lincoln and State of North Carolina, have invented certain new and useful Improvements in Grain Cleaning, Scouring, and Separating Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in grain cleaners, and separators, and its object is to provide a novel construction of the same, which shall present superior advantages with respect to efficiency in operation.

The invention consists in the novel construction and combination of parts, hereinafter fully described and claimed.

In the accompanying drawings: Figure 1 is a side elevation of a machine constructed according to my invention. Fig. 2 is a central longitudinal section of the same. Fig. 3 is a horizontal section through the frame, on the line $x-x$, Fig. 1, showing the interior parts in plan.

In the said drawings, the reference numeral 1 designates the front legs, and 2 the rear legs to which are secured the side beams or bars 3.

Journaled in the front legs 1 of the machine is a fan 4 surrounded by a casing 5. This fan and its casing may be of any ordinary or suitable construction.

Mounted upon the side bars 3 is a frame consisting of side boards 6, having their upper edges beveled from front to rear, an inclined bottom 7, having transverse openings 8 and 9 intermediate of its ends, and a front inclined top plate or board 10 one end of which projects beyond the ends of the side boards, and seats in grooves in the posts 1. This top board extends only partly the length of the side boards and pivoted just in front of its rear edge, is a riddle 12, consisting of the side bars 13, bottom 14, top sieve 15, of coarse mesh and bottom inclined sieve 16, of

fine mesh. The mouth of this riddle is located just above the opening 9, in the bottom 7, and it is provided with a rearwardly extending shield 17. The rear end of this riddle rests upon a rotatable shaft 18, provided with a series of pegs or pins 19 by which said riddle is vibrated up and down as the shaft rotates. One end of this shaft is provided with a friction pulley 20, seen in dotted lines Fig. 2, by which it is rotated as hereinafter described.

Mounted upon the side boards 6 is a hopper 21, having a feed opening 23, and a gate 24 for regulating the feed or flow of the grain. This feed opening is located just above the rear end of the top board 10.

Journaled in the side bars 3, is a large wooden roller 25, covered with india rubber or other suitable material, the shaft or axle of which at each end is provided with a pulley, 26 and 27, and a driving pulley 28, which latter may be connected by a belt (not shown) with any suitable motor. Just in rear of this roller 25 are two small rubbing rollers, 29, 29, preferably made of india rubber, the shafts of which are journaled in bearings in horizontally movable blocks 30, seated in slots 31 on the inner sides of the beams or bars 3. These rubbing rollers are rotated through the medium of the grain passing between them and roller 25. Connected with these blocks are sheet metal plates 32 against the rear ends of which abuts a transverse spring 34, the ends of which work in grooves 35 in the sides of the bars 3. Bearing against the center of this spring is a screw-rod 36, passing through a transverse beam 37 secured to the bars 3. The purpose of this screw-rod is to regulate the tension of the spring.

Journaled in the bars 3, in rear of the rubbing rolls is a rotatable brush 38, which brushes the cockle from said rolls causing it to be deposited in a box 39, connected by means of straps 40 with said bars 3. These straps are provided with holes through which pass pins 41 secured to said bars 3, so that the box may be readily removed and replaced when desired. A transverse partition 42 is located between said rolls and a transverse beveled bar 43 is located intermediate the

lower roll for preventing the cockle swept off said rolls by the rotatable brush, from being thrown between the large roller and the rubbing or scouring rolls. The shaft of this brush is connected by means of a crossed belt 45 with the pulley 26, whereby said brush is rotated. In front of the large roller 25, is a similar brush 46, journaled in side bars 3, which removes the cockle from said roller, and deposits it in a box 47, connected with the side bars similar to box 39. The shaft of this brush is connected by means of belt 48, with pulley 27.

Secured to the side bars 3, just below said large and small rolls, by means of flexible straps 49, is a separator 50 which extends to the front end of the machine, its front end resting upon an angular shaft 51, journaled in posts 1. The shaft is provided with a pulley 52, over which passes a belt 53, also passing over pulley 27 and over a pulley 58 on the shaft of the fan. This separator consists of side bars having a bottom of wire gauze or perforated metal, in sections, the meshes in each section being of varying sizes, the smallest meshes being in the rear end section and the largest meshes in the front end section.

The friction pulley 20, contacts with pulley 26, so that when the latter is rotated, shaft 18 is also rotated.

The operation is as follows: The machine being started the grain is fed from the hopper to the upper sieve of the riddle, when the chaff is blown out. The objects coarser than the grain are tailed over the projecting rear board 17, and the heavy impurities, finer than the grain, are worked through the sieve 16, onto board 14, and through opening 9, in the deck 7, into the receptacle 47; while the wheat is tailed over screen 16, through opening 8, into the bite of the small rubbing or scouring rollers, the cockle being removed therefrom, which adheres to said rollers from whence it is removed by the brushes and deposited in the boxes or receptacles 47 and 39. The grain thus screened and scoured will now fall

on the vibrating separator, which will allow the small grains to fall through at the rear end and the large grains to be expelled at the front end of the machine.

It will be noted that by the peculiar construction of the sliding blocks, in which the journals of the small scouring or rubbing rolls have their bearings and the transverse spring, the pressure will be equal at each end of said rolls, thus preventing choking of the machine.

Having thus described my invention, what I claim is—

1. In a grain cleaning and separating machine, the combination with the legs and the side bars, the frame located on said bars having an opening 8, and an inclined opening 9, intermediate its ends, and the hopper having a feed opening and a regulating gate, of the riddle pivoted at its front end to said frame, having an upper sieve 15, a rearwardly extending shield 17, and an inclined bottom terminating just in rear of the opening 9, the roller 25, the cockle rollers 29, the receptacles 47 and 39, and the separator 50, substantially as described.

2. In a grain cleaning and separating machine, the combination with the frame, the rubbing roller 25, the cockle rollers 29, 29, and the brushes 38 and 46, and means for rotating them and roller 25, of the horizontally movable plates 32, the blocks secured thereto in which the shafts of rollers 29, have their bearings, the transverse tension spring 34 bearing against said plates, the regulating screw 36, bearing against said spring, the receptacles 39 and 47, and the vibrating separator 50, substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

JAMES O. KING.

Witnesses:

L. PINKNEY SIFFORD,
W. C. WITHERS.