

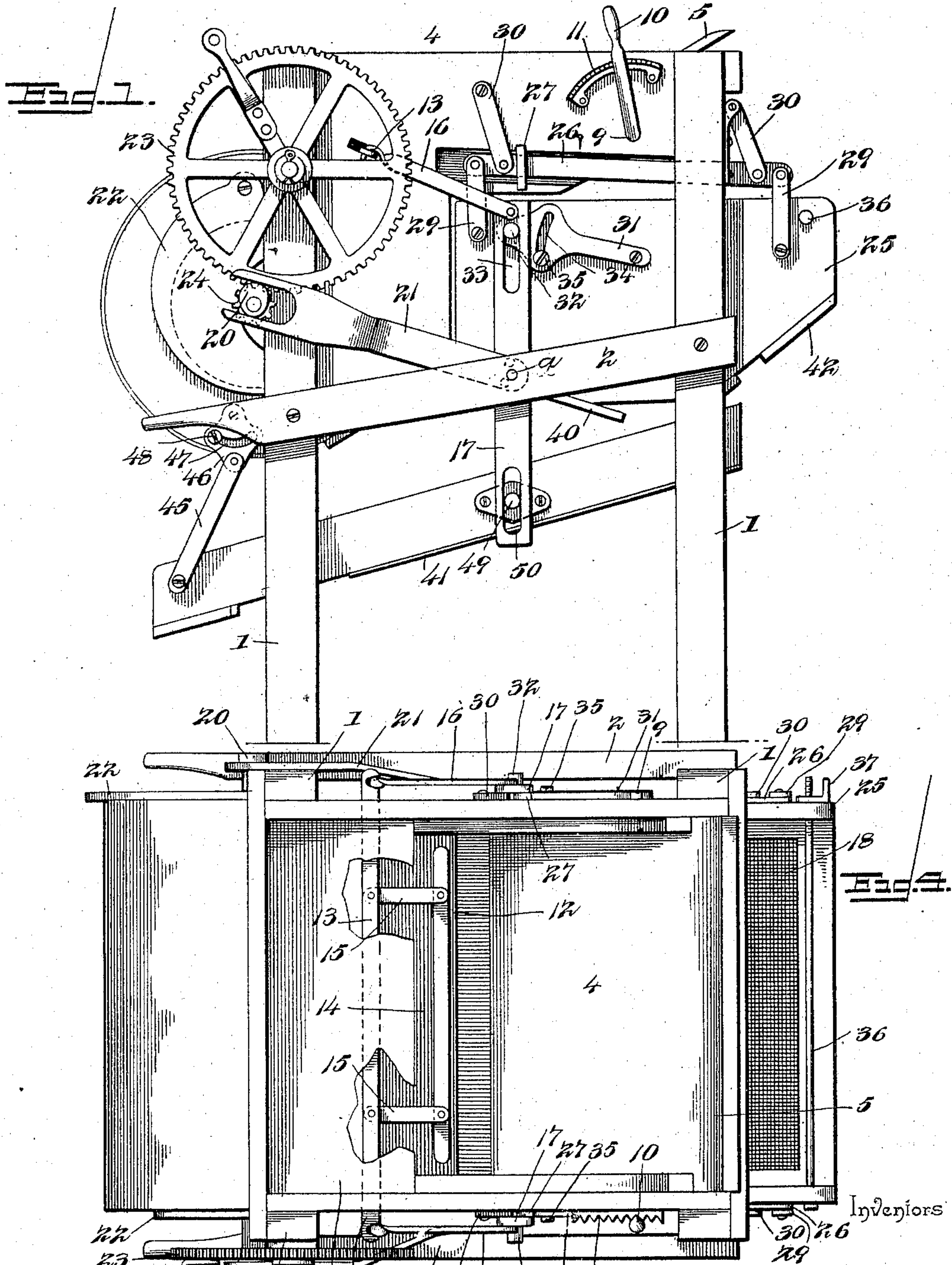
(No Model.)

3 Sheets—Sheet 1.

J. & L. ALBRECHT.
FANNING MILL.

No. 575,452.

Patented Jan. 19, 1897.



Witnesses
E. H. Stewart
V. B. Hillyard

Inventors
John Albrecht
By their Attorneys, *Louis Albrecht*

C. A. Snow & Co.

(No Model.)

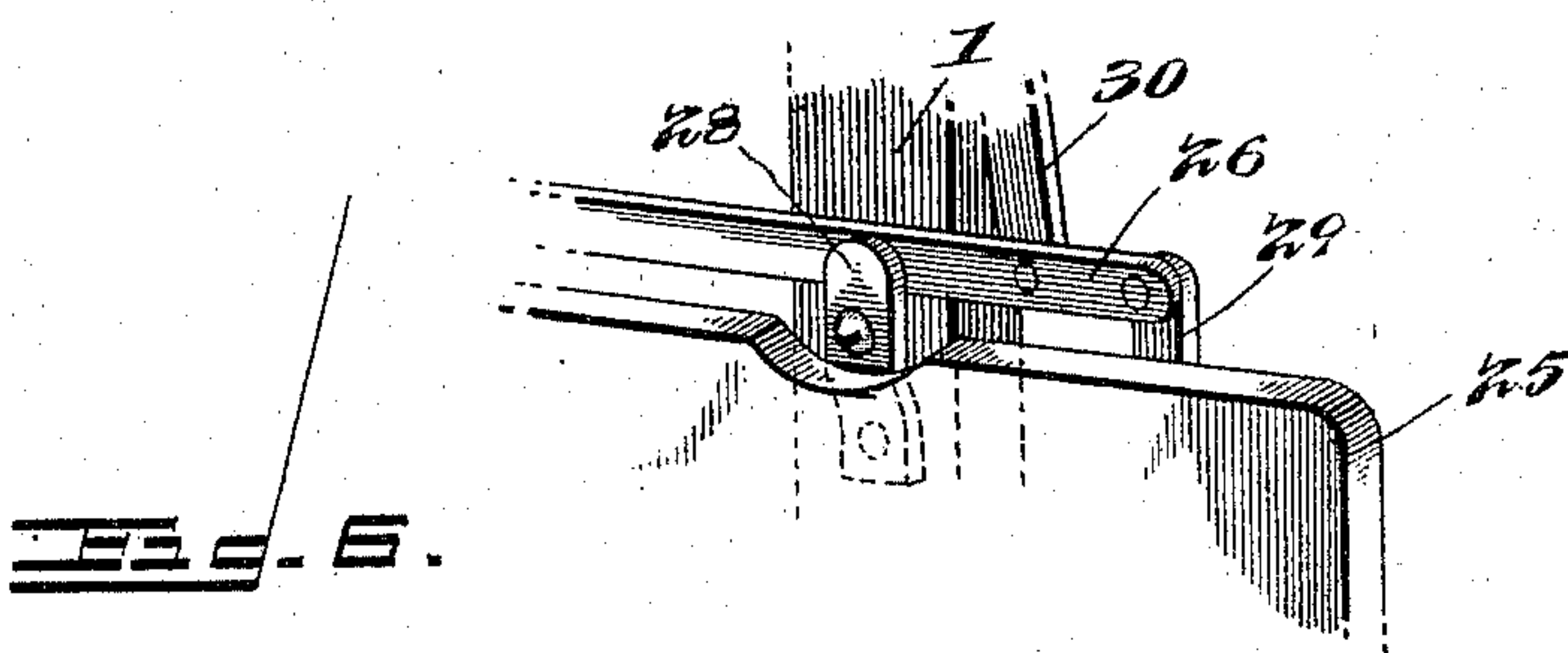
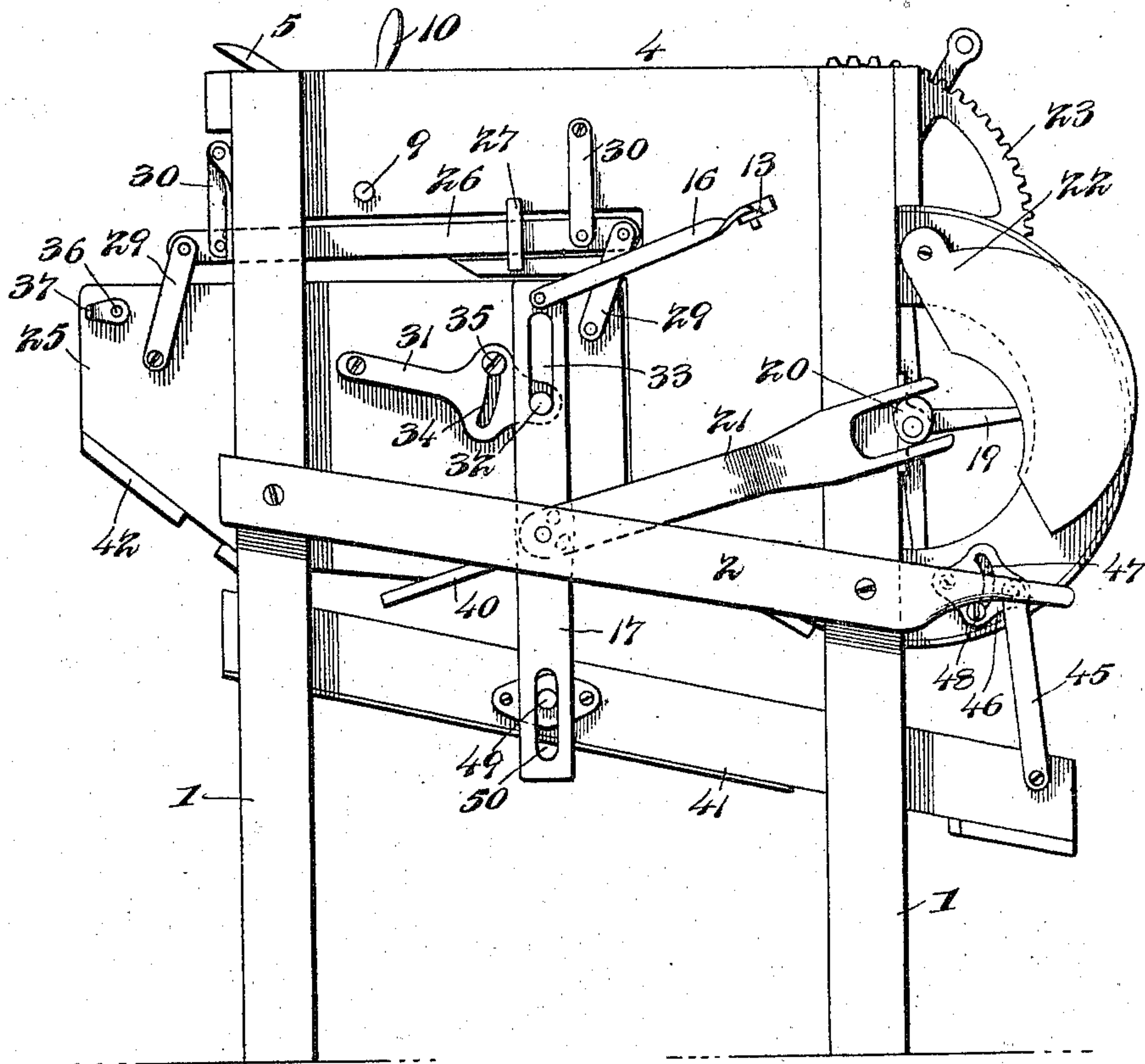
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Fig. 2.



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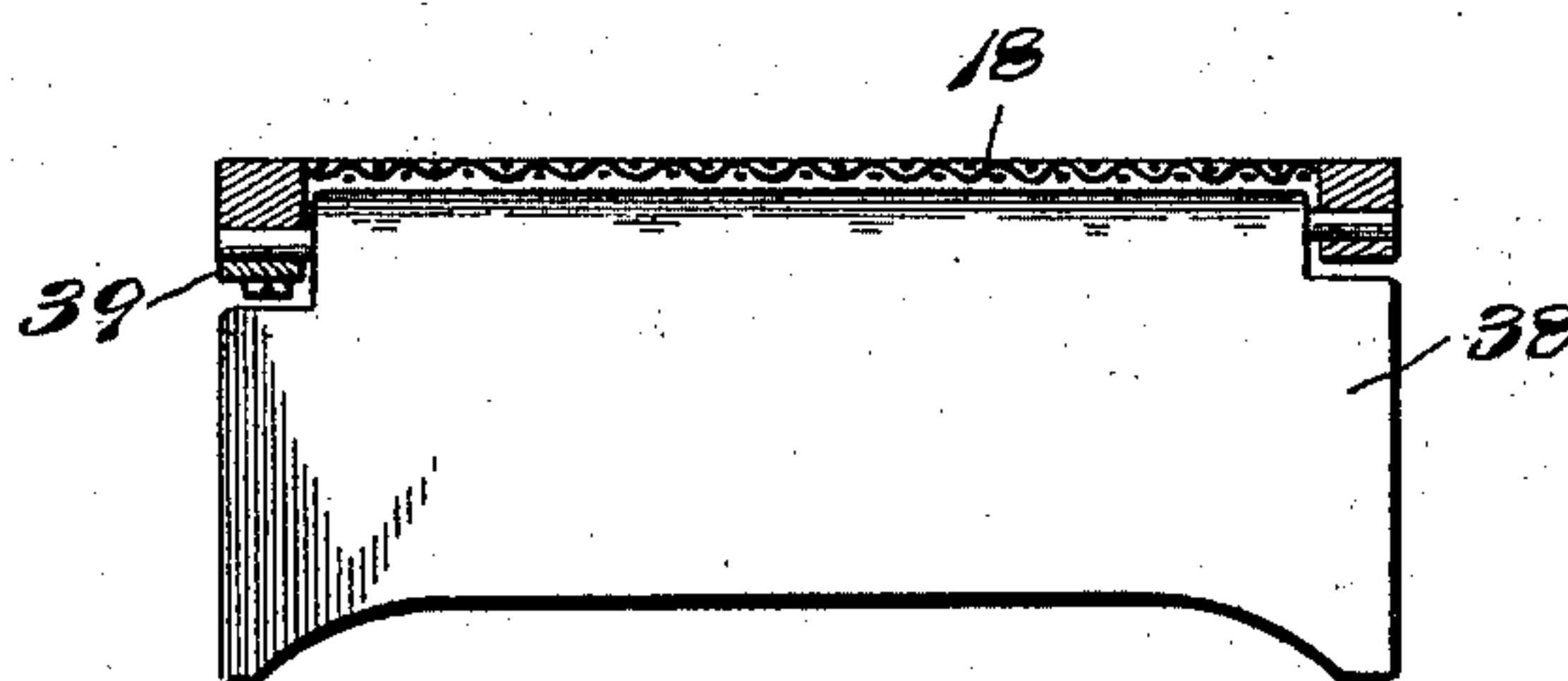
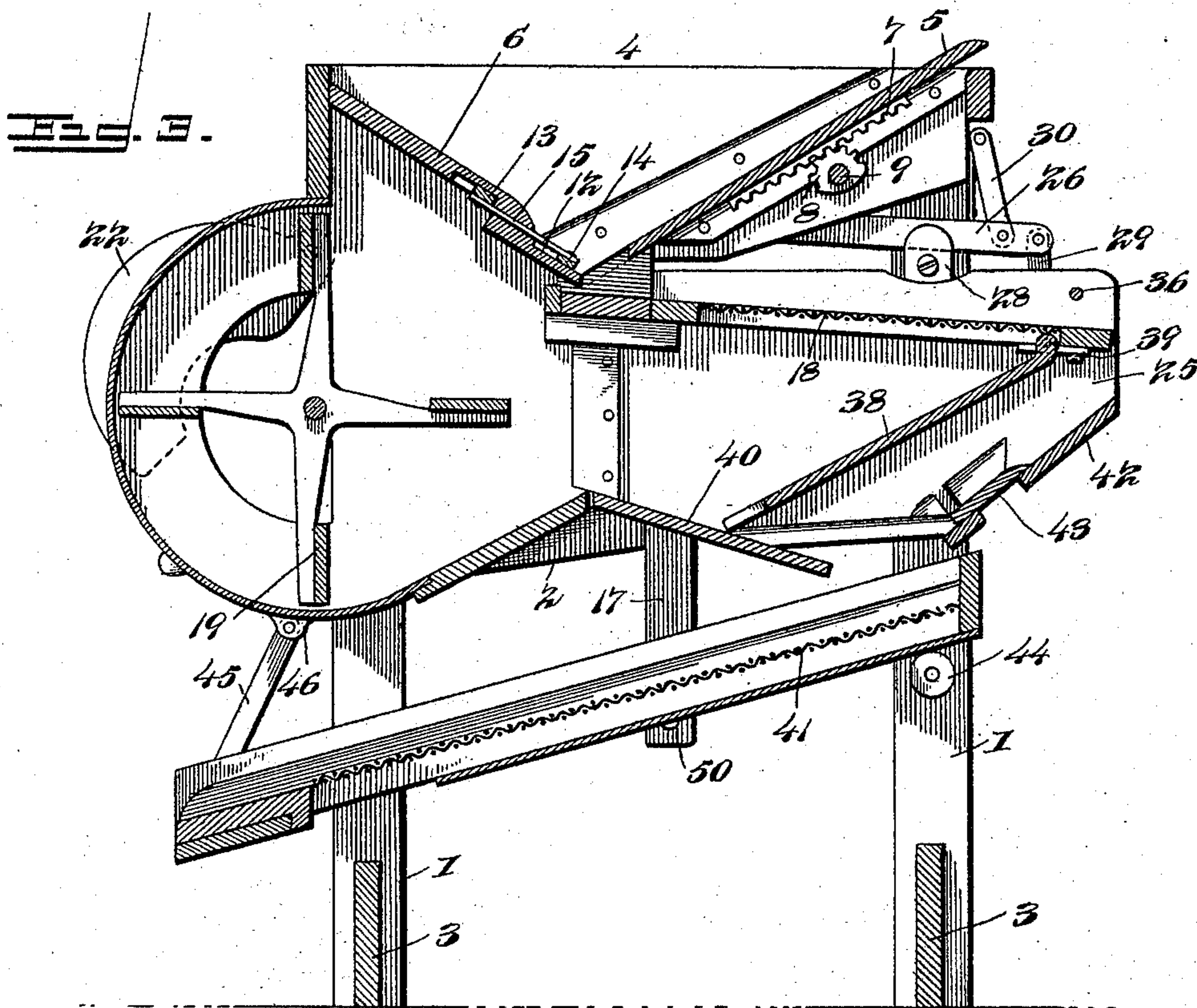


Fig. 5.

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UNITED STATES PATENT OFFICE.

JOHN ALBRECHT AND LOUIS ALBRECHT, OF LINCOLN, WISCONSIN.

FANNING-MILL.

SPECIFICATION forming part of Letters Patent No. 575,452, dated January 19, 1897.

Application filed April 30, 1896. Serial No. 589,706. (No model.)

To all whom it may concern:

Be it known that we, JOHN ALBRECHT and LOUIS ALBRECHT, citizens of the United States, residing at Lincoln, in the county of Kewaunee and State of Wisconsin, have invented a new and useful Fanning-Mill, of which the following is a specification.

This invention relates to grain separators and cleaners for removing impurities, chaff, dust, &c., from grass-seed and all kinds of grain and delivering the same in good condition for the market.

The improvement aims to secure a thorough and rapid cleaning of grain and to provide means for adjusting the relative inclination, height, and throw of the operating parts according to the nature and condition of the grain being treated.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a grain-separator constructed in accordance with the principles of this invention, the adjustable connections being at the limit of their movement in one direction. Fig. 2 is a reverse side view showing the adjustable connections at the limit of their movement in an opposite direction. Fig. 3 is a vertical longitudinal section. Fig. 4 is a top plan view, a portion of the hopper being omitted to show the construction of the force-feeder. Fig. 5 is a detail view showing the manner of removably connecting the blast-board to the upper separating-screen. Fig. 6 is a detail view of a slide-bar, to which the links for supporting the upper shoe are pivotally connected, showing the means for securing the said slide-bar in an adjusted position.

Corresponding and like parts are referred to in the following description and indicated in the several views of the accompanying drawings by the same reference-characters.

The framework comprises uprights 1, longitudinal bars 2, and transverse connecting-pieces 3. The hopper 4 is located at the upper end of the frame, and its front and rear pieces 5 and 6 oppositely incline, so as to direct the grain to the space or opening formed between their lower edges. The piece 5 is adjustable, so as to regulate the size of the escape-opening in the bottom of the hopper, thereby making provision to control the amount of grain fed in a given time, and in this capacity acts as a cut-off or feed-regulator. A rack-bar 7 is secured to the lower side of the cut-off 5, and a toothed segment 8, secured to a transverse shaft 9, meshes with the rack-bar, and upon turning the shaft 9 the cut-off is moved in ways provided at the sides of the hopper for the cut-off to operate in.

A handle 10 is applied to or forms a part of the transverse shaft 9 and is made sufficiently thin adjacent to the shaft to admit of its springing laterally, so that it may engage positively with a tooth of a notched segment 11, secured to the outer side of the hopper concentric with the shaft 9. By grasping the handle 10 and moving it away from the notched segment it can be turned either to the right or left to properly adjust the cut-off to attain the required feed of grain, and when the handle is released it will spring toward the notched segment and secure the cut-off in the located position.

The rear piece 6 has an extension 12 at its lower edge and about in the plane of the rear side thereof, and a force-feeder operates over this extension 12 adjacent to the opening formed between the lower edges of the parts 5 and 6. This force-feeder comprises parallel bars 13 and 14 and connecting-bars 15, the lower bar 14 operating over the extension 12 and the upper bar 13 coming beneath the part 6 in the rear of the extension 12 and having its ends operating in slots in the sides of the hopper and projecting beyond the same. Links 16 connect the projecting ends of the bar 13 with the upper ends of vertically-disposed levers 17, fulcrumed about midway of their ends to the longitudinal bars 2 at *a*. As the levers 17 vibrate a corresponding movement is imparted to the force-feeder, and the bar 14 engaging with the grain forces the lat-

ter through the escape-opening in the bottom of the hopper onto the upper separating-screen 18.

The fan 19 is of ordinary construction and is placed immediately below the rear portion of the hopper, and the end portions of its shaft project beyond the ends of the fan-case and are supplied with eccentrics 20, which cooperate with arms 21, attached to the vertical levers 17, so as to oscillate or vibrate the latter, the rear ends of the arms being notched to receive the eccentrics, which operate therein. The ends of the fan-case are open and are adapted to be closed by segmental doors 22, which have pivotal connection with the fan-case and are adapted to be opened more or less to regulate the supply of air to the fan. A master-wheel 23, mounted upon a stub-shaft affixed to a side of the frame and adapted to be driven by hand or other power, meshes with a pinion 24 on the fan-shaft, so as to rotate the latter when motion is imparted to the said master-wheel.

A grain-shoe 25 is located in front of the fan and in the plane thereof and immediately below the front portion of the hopper and is suspended by pairs of links, which have their opposing ends pivoted to slide-bars 26, the latter being arranged upon opposite sides of the separator in transverse alinement and extending horizontally. Each slide-bar 26 operates in a groove in the side of the hopper and beneath a keeper 27, which spans the said groove, and a clamp-plate 28, applied to each forward upright and secured thereto by means of a binding-screw, holds the slide-bar in the located position. The lower links 29 have pivotal connection with the shoe, and the upper links 30 have pivotal connection with the frame of the separator, and the adjacent ends of these links are pivotally connected with the slide-bars 26. Upon moving the slide-bars in or out the shoe can be raised or lowered, thereby regulating the amplitude of its movement. After the slide-bars are properly adjusted the clamp-plates 28 are tightened, so as to hold them in the located position. A plate 31 is pivoted at its front end to each side of the shoe and has a lateral extension 32 at its opposite end to operate in a slot 33 of the vertical lever 17. An intermediate portion of each plate 31 is expanded and provided with an arcuate slot 34, which receives a binding-screw 35, let into a side of the shoe, so as to hold the lever in the required position. By a proper adjustment of the plates 31 the lateral extensions 32 can be moved to a greater or less distance from the fulcrum of the levers 17, thereby regulating the amplitude of movement of the shoe. A tie-rod 36 connects the upper front corners of the side pieces comprising the shoe and can be tightened or loosened by means of a hand-nut 37 on its threaded end, thereby making provision to clamp the side pieces of the shoe against the edges of the upper separating-

screen 18, so as to hold the latter in an adjusted position.

The separating-screen 18 inclines rearwardly and upwardly from its front end, the degree of the inclination depending upon the condition of the grain and the character of the latter to be purified, and by loosening the tie-rod the front end of the screen can be raised or lowered, and after the desired adjustment is had the tie-rod is again tightened to hold the screen in the adjusted position.

A blast-board 38 is pivoted at its front end to the forward portion of the screen 18 and inclines rearwardly and downwardly, and its inclination to the horizontal can be changed by loosening the tie-rod 36 in precisely the same manner as practiced for changing the inclination of the separating-screen 18. In some instances it may be advisable to remove the blast-board 38, and this can be accomplished by means of a plate 39, which is removably connected to the frame of the screen 18 by a bolt or screw, and which closes the notch in which a pivot of the blast-board is fitted. The opposite pivot of the blast-board is fitted in an opening in a side bar of the screen-frame and is placed in position or removed by a lateral shifting of the blast-board when the notch closed by the plate 39 is uncovered. By changing the inclination of the blast-board more or less of the blast is directed upwardly through the meshes of the front portion of the screen 18, thereby carrying off chaff and light particles. A board 40 inclines upwardly and rearwardly from its front edge and is located immediately below the rear portion of the separating-screen 18 and receives the grain and directs the same to the front portion of the lower separating-screen 41. A board 42 is located at the front end of the shoe and inclines in an opposite direction to the board 40 and has a transverse opening adjacent to its lower edge, which is closed by a slide 43, which is arranged upon the top side of the board 42, and is beveled at its upper edge to prevent the formation of a shoulder for the lodgment of the grain thereon. Upon removing the slide 43 the grain passing over the front edge of the separating-screen 18 and dropping upon the board 42 will escape through the opening closed by the said slide 43.

The lower separating-screen 41 inclines in an opposite direction to the screen 18 and is located below the shoe and fan and is supported at its front end upon rollers 44 and at its rear end by links 45, which have pivotal connection at their upper ends with plates 46, pivoted to the fan-case and having an arcuate slot 47, through which extends a binding-screw 48 to hold the plates in an adjusted position, whereby the rear end of the screen 41 can be raised or lowered. By elevating the rear end of the screen the grain is discharged slowly, and when the rear end of the screen is lowered the grain is discharged rapidly and the

screen receives a quick action. Lateral extensions 49 project from the sides of the screen 41 and operate in slots 50 in the lower ends of the vertical levers 17, whereby movement is 5 imparted to the lower separating-screen.

It will be observed that the various parts are actuated without the intervention of belts and pulleys, and that the separating devices are adapted to be raised and lowered and have 10 their amplitude of movement varied in a simple and effective way, thereby reducing the first cost of the separator and prolonging the usefulness of the machine, since the operating parts are not liable to get out of order 15 and necessitate repairs.

Having thus described the invention, what is claimed as new is—

1. In a grain-separator, a hopper comprising oppositely-inclining pieces forming a bottom, and having a discharge-opening between 20 their lower edges, one of the pieces having an extension whose top side is about in the plane of the bottom side of the piece from which it projects, a bar supported upon said extension, and means for reciprocating the bar laterally upon the extension toward and from the discharge-opening, whereby the grain is agitated and forcibly fed through the said opening, substantially as set forth.

2. In a grain-separator, a hopper comprising an inclined bottom piece having an extension at its lower edge, and having the top side of the extension about in the plane of the bottom side of the said inclined piece, a bar 30 supported upon the extension, a second bar parallel with the first bar and located below the inclined piece, and having its end portions projecting through slots in the sides of the hopper, short bars connecting the parallel 35 bars, vibrating levers, and links connecting the projecting ends of the said second bar with the vibrating levers, substantially as and for the purpose set forth.

3. In a grain-separator, the combination of a 45 frame, horizontally-disposed bars at the sides of the frame, links having pivotal connection at their lower ends with the said horizontal bars and at their upper ends with the frame, other links having pivotal connection at their 50 upper ends with the horizontal bars and pendent therefrom, a shoe having pivotal connection with the lower ends of the pendent links and supported thereby, actuating mechanism for vibrating the shoe, and means for 55 adjusting the aforesaid horizontal bars and securing them in an adjusted position to vary the height and amplitude of movement of the shoe, substantially as set forth.

4. In a grain-separator, the combination of 60 a frame, horizontally-disposed bars at the sides of the frame, links having pivotal connection at their lower ends with the said horizontal bars and at their upper ends with the frame, other links having pivotal connection

at their upper ends with the horizontal 65 bars and pendent therefrom, a shoe having pivotal connection with the lower ends of the pendent links, means for imparting a vibratory movement to the shoe, and clamp-plates for securing the aforesaid horizontal bars in 70 an adjusted position, whereby the elevation and amplitude of movement of the shoe are regulated, substantially as set forth.

5. In a grain-separator, the combination of a shoe, vertically-disposed vibrating levers, 75 longitudinally-disposed plates having pivotal connection with the shoe and adjustable connection with the vibrating levers, and means to admit of the longitudinal plates being shifted to change their point of attachment 80 with the vibrating levers for varying the throw of the shoe and securing the said plates in an adjusted position, substantially as set forth.

6. In a grain-separator, the combination of 85 a shoe, vertically-disposed vibrating levers having longitudinal slots, horizontally-disposed plates pivoted at one end to the shoe and having lateral extensions at their other end to enter the slots of the vibrating levers, 90 and having transverse arcuate slots intermediate of their ends, and binding-screws operating through the arcuate slots of the horizontal plates to secure the latter in a located position, substantially as and for the purpose 95 set forth.

7. In a grain-separator, the combination of a fan, a shoe comprising side pieces and a separating-screen, the latter being vertically adjustable at its outer end, a tie-rod and hand- 100 nut for clamping the screen between the side pieces of the shoe, a blast-board pivoted to and movable with the separating-screen, one pivot entering a notch in the screen-frame, and a plate secured to the screen-frame and 105 extending over the notch to retain the pivot in place, substantially as and for the purpose set forth.

8. In a grain-separator, the combination of a force-feeder located in the hopper, a shoe, a 110 lower separating-screen, vertically-disposed levers fulcrumed intermediate of their ends, connections between the said levers and the force-feeder, shoe and lower separating-screen, arms secured to the vertical levers and 115 having their outer or rear ends notched, and a shaft having eccentrics to operate in the notched ends of the said arms, substantially as and for the purpose set forth.

In testimony that we claim the foregoing as 120 our own we have hereto affixed our signatures in the presence of two witnesses.

JOHN ALBRECHT.
LOUIS ALBRECHT.

Witnesses:

L. A. OVERBECK,
M. T. PARKER.