

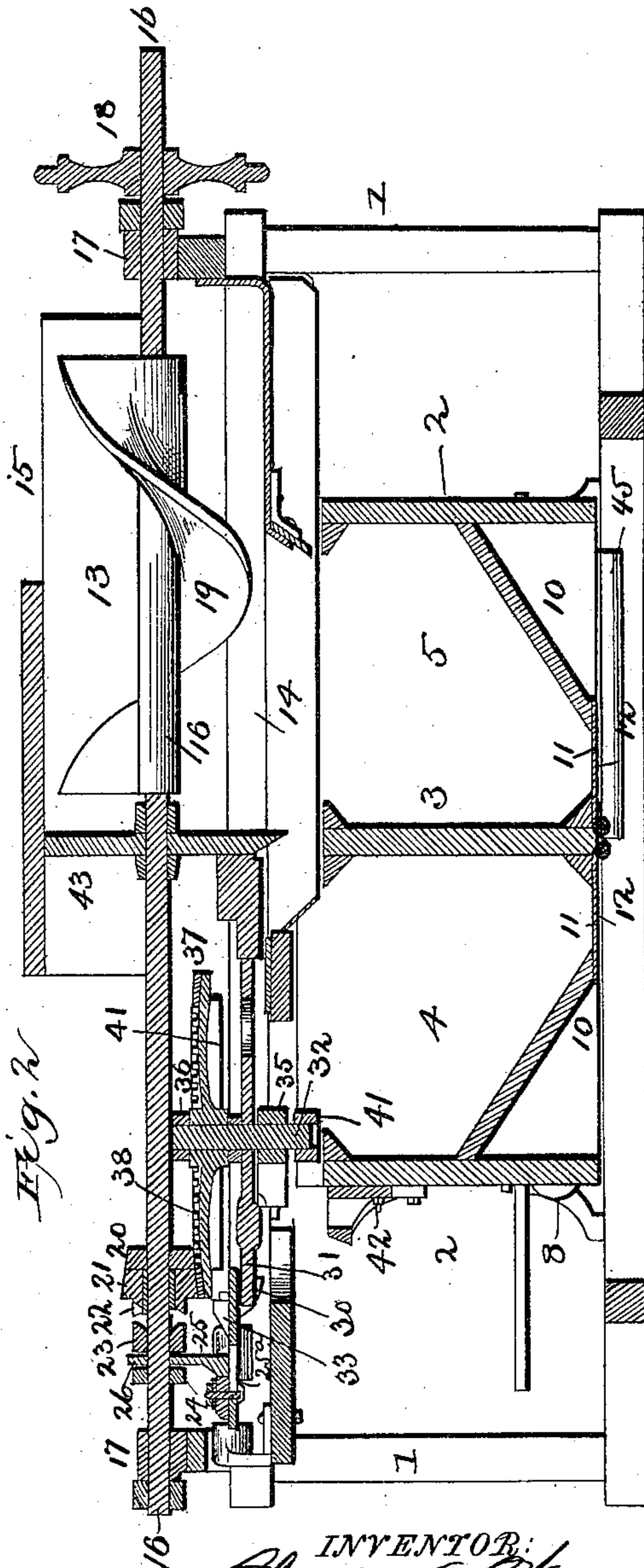
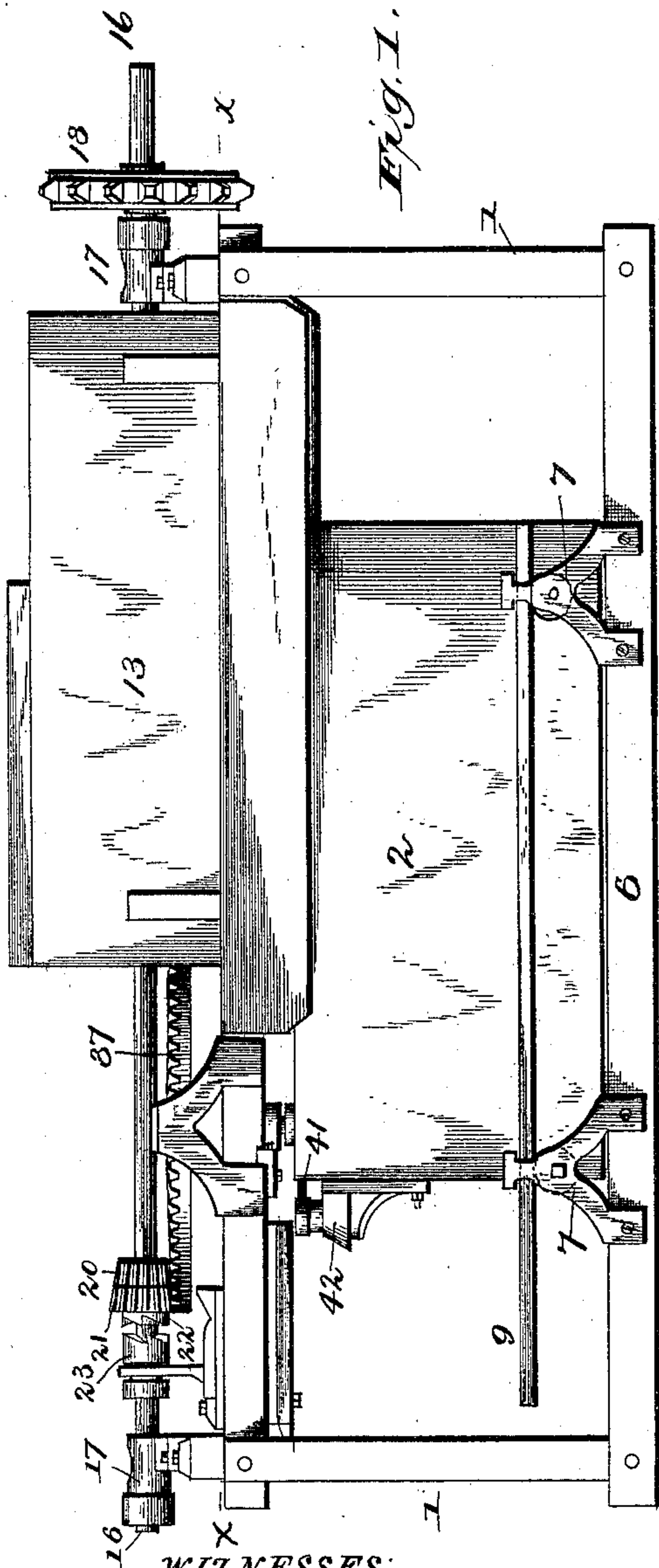
(No Model.)

2 Sheets—Sheet 1.

C. A. WEVER.
GRAIN MEASURING DEVICE.

No. 432,347.

Patented July 15, 1890.



WITNESSES:
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J. L. G. Loomis

INVENTOR:
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by James Duggan & Co.
Attorneys.

(No Model.)

2 Sheets—Sheet 2.

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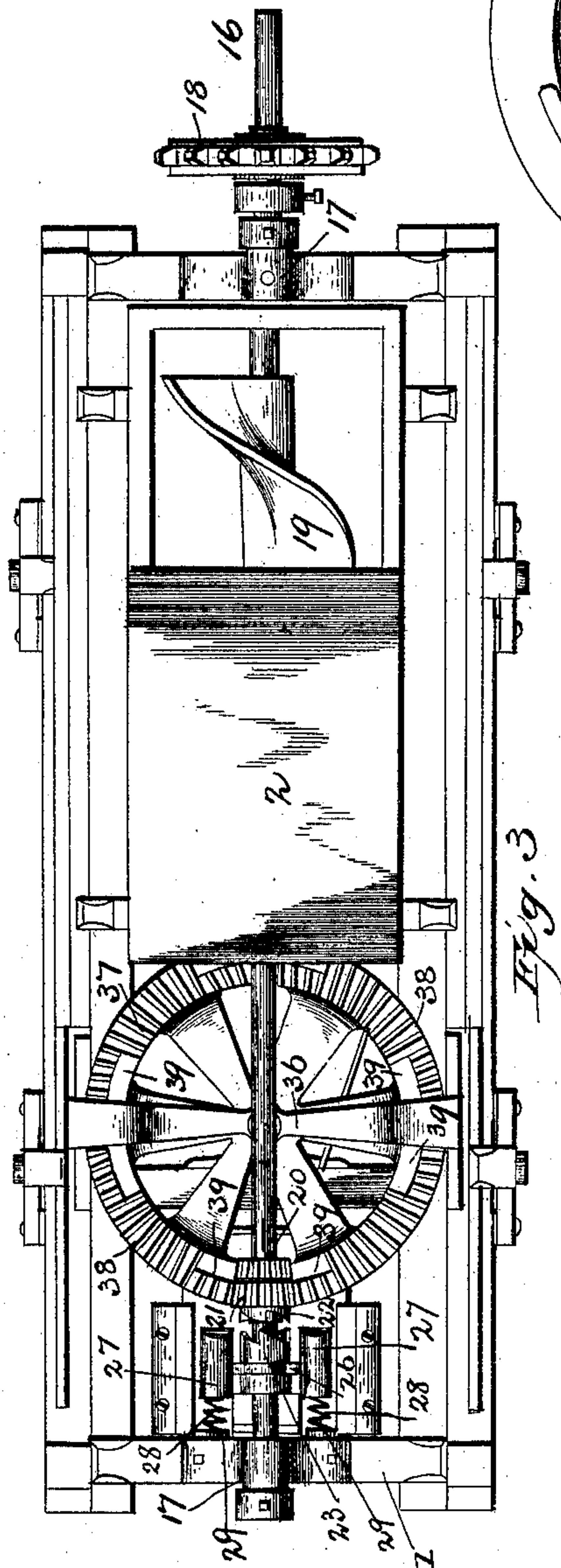


Fig. 3

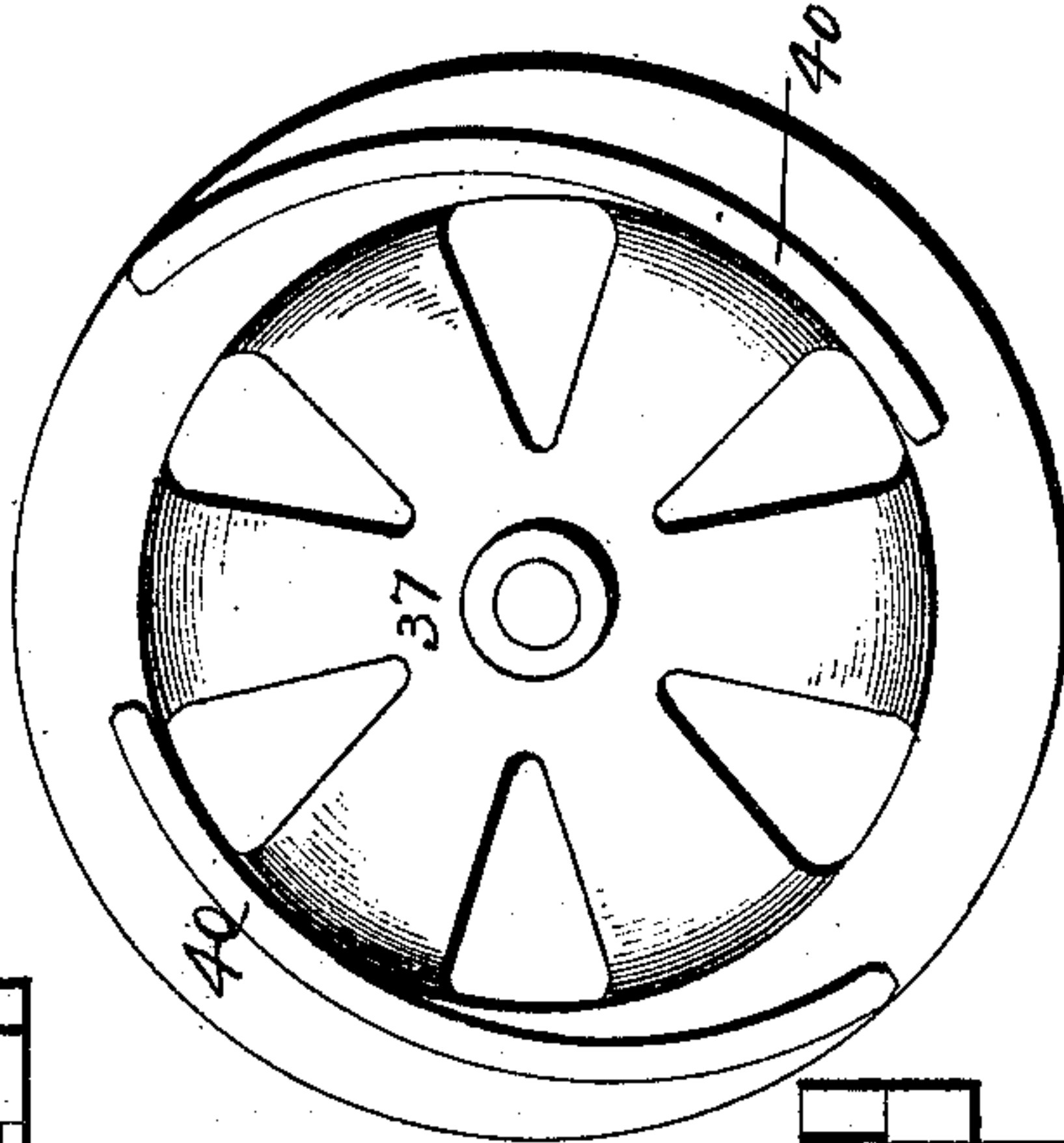


Fig. 5

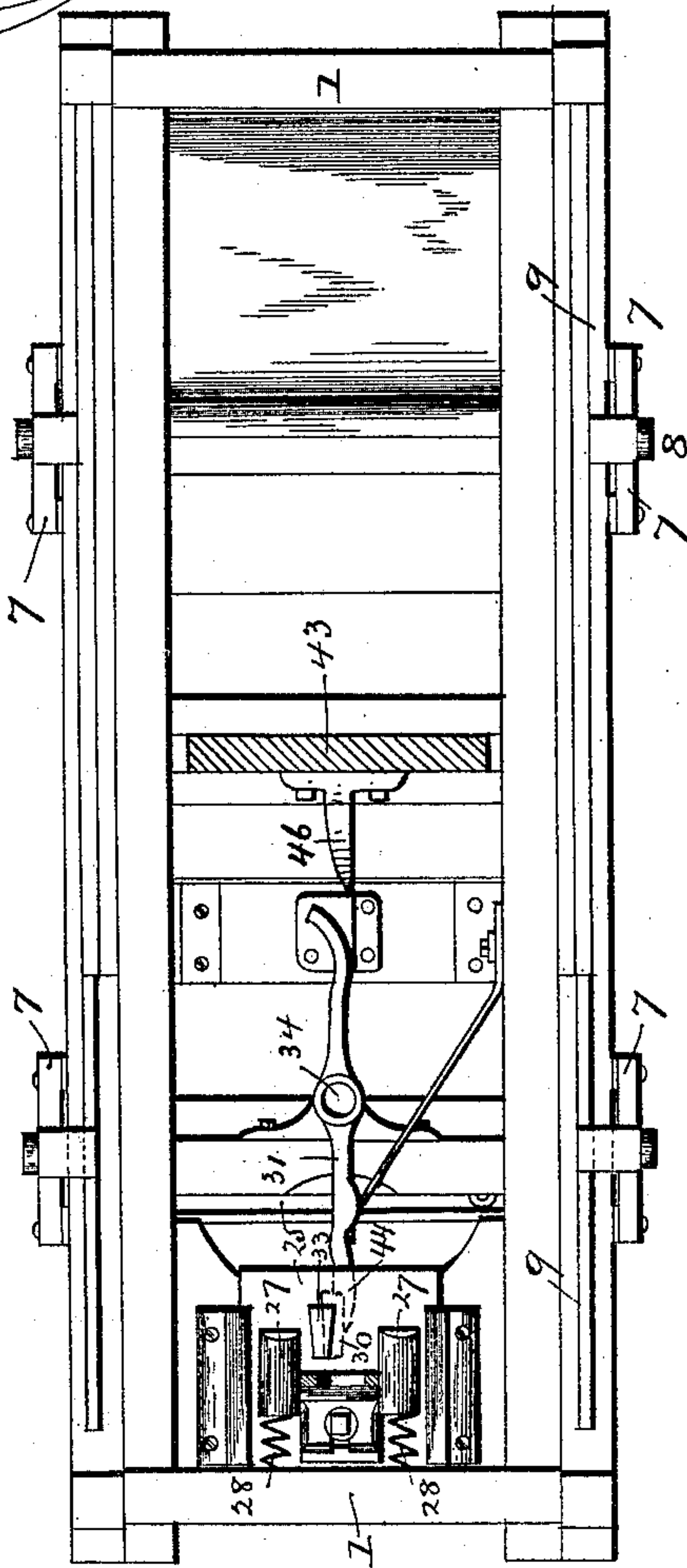


Fig. 4

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UNITED STATES PATENT OFFICE.

CHARLES A. WEVER, OF CLAYTON, ILLINOIS.

GRAIN-MEASURING DEVICE.

SPECIFICATION forming part of Letters Patent No. 432,347, dated July 15, 1890.

Application filed January 28, 1890. Serial No. 338,387. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. WEVER, a citizen of the United States, and a resident of Clayton, in the county of Adams and State of Illinois, have invented certain new and useful Improvements in Grain-Measuring Devices; 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.

My invention relates to grain-measuring devices, and is an improvement upon the invention disclosed in Letters Patent, No. 308,001, granted to Frank M. Sommer November 11, 1884. In this invention a revolving or rotating measuring-vessel divided into equal compartments was employed, said compartments being alternately brought under the mouth of a feeding-hopper, suitable means being employed for automatically rotating said vessel at the proper times. In the present invention I use a horizontally-reciprocating measuring device in place of the rotating vessel above set forth; and the invention consists in the several novel features of construction and new combinations of parts hereinafter fully described, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a grain-measuring apparatus constructed according to my invention. Fig. 2 is a longitudinal section of the same. Fig. 3 is a plan view of the same. Fig. 4 is a horizontal sectional view on the line $x x$ of Fig. 1. Fig. 5 is a bottom view of the crown-wheel.

In the said drawings, the reference-numeral 1 indicates an upright rectangular frame, in which the measuring-vessel 2 reciprocates. This measuring-vessel consists of a rectangular box divided by means of a partition 3 into two compartments 4 and 5. Upon the bottom side rails 6 of the frame 1, and upon the outer edges, are secured the upwardly-extending brackets 7, carrying the rollers 8, which freely revolve therein. Upon these rollers rest the bars 9, firmly secured to the vessel 2. The lower portions of the ends of vessels 2 are inclined, as shown at 10, so as to form contracted discharge-orifices 11, which

are closed by the rectangular bottom plates 12, hinged to the partition 3. A rectangular casing 13 is secured upon the upper side of frame 1 and surrounds an aperture 14 at one end thereof in the top plate, and a feed-opening 15 is provided at the other end of said casing, by which grain is fed thereto from the elevator or discharge-spout of a thrashing-machine. A horizontal shaft 16 is journaled in bearings 17 17 upon the top piece of frame 1, and is provided at one end with a sprocket-wheel 18, by which wheel the shaft may be rotated by means of a belt passing over a similar wheel connected with the machinery of the elevator, thrashing-machine, or other suitable machinery, and the portion of the shaft which revolves within the casing 13 is provided with a spirally-flanged sleeve 19. A pinion 20 is secured upon the shaft near one end, and a loose pinion 21 turns freely upon the shaft immediately behind the rigid pinion, and is provided on its outer face with a half-clutch 22, which engages with a half-clutch 23 upon one end of a grooved sleeve 24, which revolves with and slides upon the shaft. A slide 25 slides in ways in a cross-piece 25^a, secured to the upper side pieces of the frame, and has a bifurcated arm 26 upon its upper side, the bifurcations of which engage the groove in the sleeve 24. The slide 25 is provided with two cylindrical sleeves 27, within which are carried the spiral springs 28, the outer ends of which abut against projections 29 on the end cross-piece of the frame 1. The slide 25 is also provided with a downwardly-projecting lug 30 on its lower inner end, which engages with a lever or trigger 31, pivoted upon the vertical shaft 32, and upon its upper side is provided with a lug 33, engaging with ratchet-teeth on the crown-wheel, as hereinafter described.

Upon a vertical shaft 34, having its bearings in cross-pieces 35 36 of frame 1, is secured the crown-wheel 37, having upon its upper face teeth or cogs 38, the inner halves of which are cut away at intervals, forming spaces 39, the outer halves of these cogs meshing with the loose pinion and the inner half meshing with the rigid pinion, and the under side of the crown-wheel is provided with a number of cams or ratchet-teeth 40, which engage with

lug 33. These cams or ratchet-teeth are so arranged with reference to the teeth on the upper side of the crown-wheel that after the cam has forced the plate back, engaging the trigger with the lug on the plate, the crown-wheel will still move enough, so that when the trigger is released from the lug the clutch may engage without the upper lug on the plate coming in contact with the cam. The lower end of the shaft 34 is provided with a crank-arm 41, which works in a yoke 42, secured to the measuring-vessel.

The inner end of the casing 13 consists of a trip-board 43, slidable upon shaft 16, which is provided with the spiral 19. This board is provided with a curved or rounded lug 46, which engages with and operates the trigger 31. The opposite end of the trigger is provided with a notch 44, which engages with the lug 30 and holds half-clutch 22 out of engagement with the other clutch 23. Upon the inner sides of the side pieces of the frame 1 are secured the strips 45. These strips are so located and arranged with respect to the hinged bottom plates that they retain said plate of one compartment closed while it is being filled, but when full and moved out of line with the feed-opening allows the same to fall down to discharge the contents.

The operation of the apparatus is as follows: The hopper is placed under the discharge-spout of the thrashing-machine, grain-elevator, or other machine or receptacle from which the grain passes, and the sprocket-wheel on the end of the horizontal shaft is connected by a belt either to the machinery of a thrashing-machine or elevator, or to any other continuously-operating motor, and the spirally-flanged sleeve will serve to distribute the grain evenly in the casing, feeding it into the compartment which is under the opening therein, and it will be seen that the spiral flange will force the grain against the sliding plate forming the inner end of the casing when the compartment is full, causing the curved side of the lug thereon to bear against the curved side of the trigger, which will release the notch or shoulder at its opposite end from the lug on the slide, allowing the slide to be forced inward, causing it to engage the half-clutch of the loose pinion, which, when revolved with the shaft, will revolve the crown-wheel, the rigid pinion fitting in one of the blank spaces until it arrives at the portion where the teeth or cogs are of their full length. When the pinion arrives at the place where the cogs are cut off, the ratchet-tooth upon the under side of the crown-wheel will force the slide back, bearing against the lug on its upper side, which will force the clutch-wheel out of engagement with the loose pinion, when the horizontal shaft may again revolve without revolving the crown-wheel until the compartment which is under the aperture in the casing is full, when the grain will again throw the clutch into engagement with the pinion, causing the crown-wheel to

revolve and moving the measuring-vessel by means of the crank and yoke until another compartment is brought under the opening in the casing. As the bottom plates of the full compartment pass by the pieces in the sides of the casing, they are allowed to drop down and empty the compartment, and are closed by the return movement of said measuring-vessel.

Any suitable registering device may be connected with the apparatus which will register the number of compartments filled, the capacity of which compartments is preferably a known and used quantity—as, for instance, one bushel or one-half of a bushel or other known or used measure.

Having thus described my invention, what I claim is—

1. The combination of a reciprocating measuring-vessel divided into compartments, a vertical shaft having a crank-arm connected with said reciprocating vessel, a crown-wheel secured upon said shaft and having the inner halves of its cogs cut away to form spaces, a horizontal shaft, a pinion secured upon said shaft registering and meshing with the inner halves of the cogs and blank spaces of the crown-wheel, a pinion turning loose upon the shaft, and means, substantially as described, for revolving the loose pinion with the shaft when a compartment is full, as and for the purpose shown and set forth.

2. The combination of a reciprocating measuring-vessel divided into compartments, a vertical shaft having a crank-arm connected with said reciprocating vessel, a crown-wheel secured upon said shaft and having the inner halves of its cogs cut away to form spaces, a horizontal shaft, a pinion upon said shaft registering and meshing with the inner halves of the cogs and blank spaces of the crown-wheel, a pinion meshing with the outer halves of the cogs of the crown-wheel, turning freely upon the shaft and having a half-clutch upon its outer face, a sleeve sliding upon and turning with the shaft and having a half-clutch upon its inner end, and means for forcing the said sleeve toward the clutch of the pinion when a compartment is full, and drawing it back when another compartment has been presented, substantially as described.

3. The combination of a reciprocating measuring-vessel divided by a partition into equal compartments, a rectangular casing having an inlet-opening, a drive-shaft journaled longitudinally in the said casing and provided with a spirally-flanged sleeve, a sliding plate forming one end of the casing and sliding upon said shaft, bottom plates hinged to the partitions of the measuring-vessel, strips secured to the frame for securing and actuating said bottom plates, and means, substantially as described, for reciprocating the measuring-vessel when the sliding plate is moved outward from the casing, as and for the purpose shown and set forth.

4. The combination of a reciprocating measuring-vessel divided into equal compartments,

a rectangular casing secured above the same,
a shaft passing longitudinally through said
casing, a crown-wheel secured upon a vertical
shaft and provided upon its upper side with
5 cogs having the inner halves cut away at in-
tervals and provided on its under side with
ratchet-teeth, a crank secured to the vertical
shaft and connected with the reciprocating
vessel, a pinion secured rigidly upon the hori-
10 zontal shaft and registering and meshing with
the inner halves of the cogs and with the spaces,
a loose pinion turning upon the shaft outside
of the fast pinion and provided with a half-
clutch upon its outer side, a grooved sleeve
15 sliding upon the shaft and having a half-clutch

upon its inner end engaging the clutch of the
pinion, a slide having a bifurcated arm engag-
ing with said sleeve, springs bearing against
said slide, lugs upon said slide, a trigger piv-
oted upon the vertical shaft, and a curved lug 20
on the sliding end of the casing, substantially
as described.

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

CHARLES A. WEVER.

Witnesses:

L. C. MARRETT,
JOSEPH DE LEW.