

(No Model.)

2 Sheets—Sheet 1.

C. N. McFARLAND.
AUTOMATIC FEEDER.

No. 409,331.

Patented Aug. 20, 1889.

Fig. 1

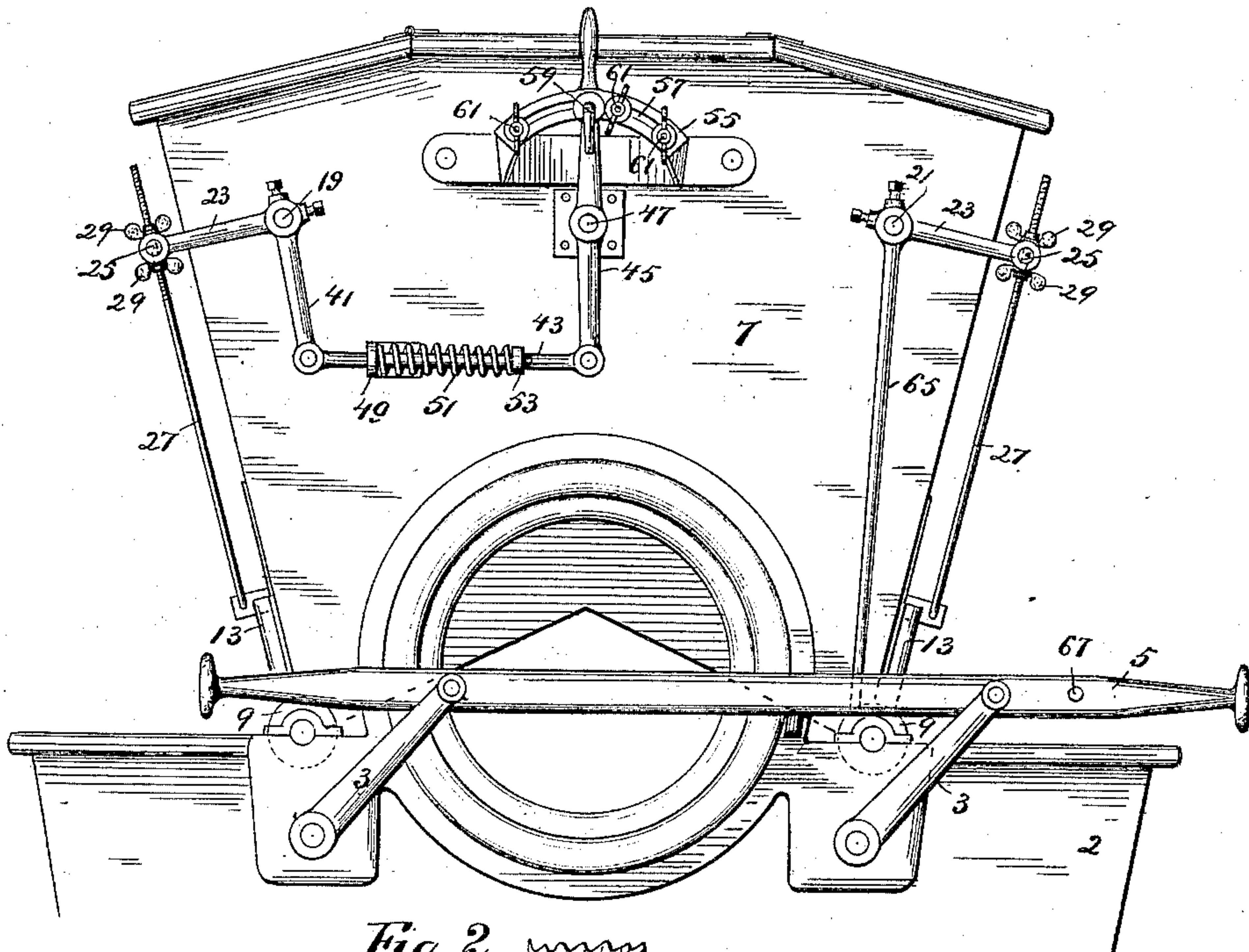
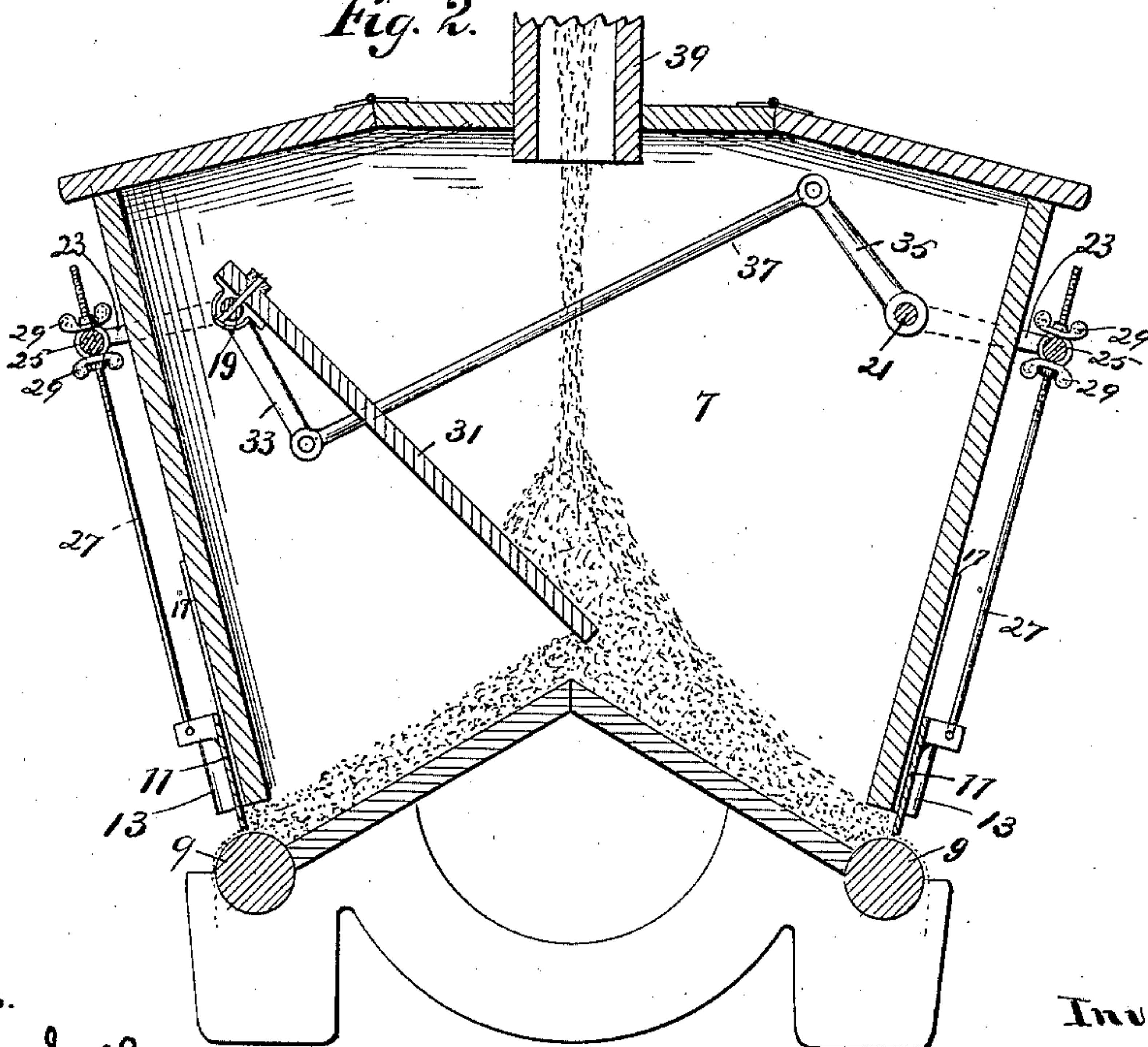


Fig. 2



Witnesses.
a.m. gashell
J. Jensen.

Inventor.
Charles N. McFarland

By Paul & Merwin attys

(No Model.)

2 Sheets—Sheet 2.

C. N. McFARLAND.
AUTOMATIC FEEDER.

No. 409,331.

Patented Aug. 20, 1889.

Fig. 3.

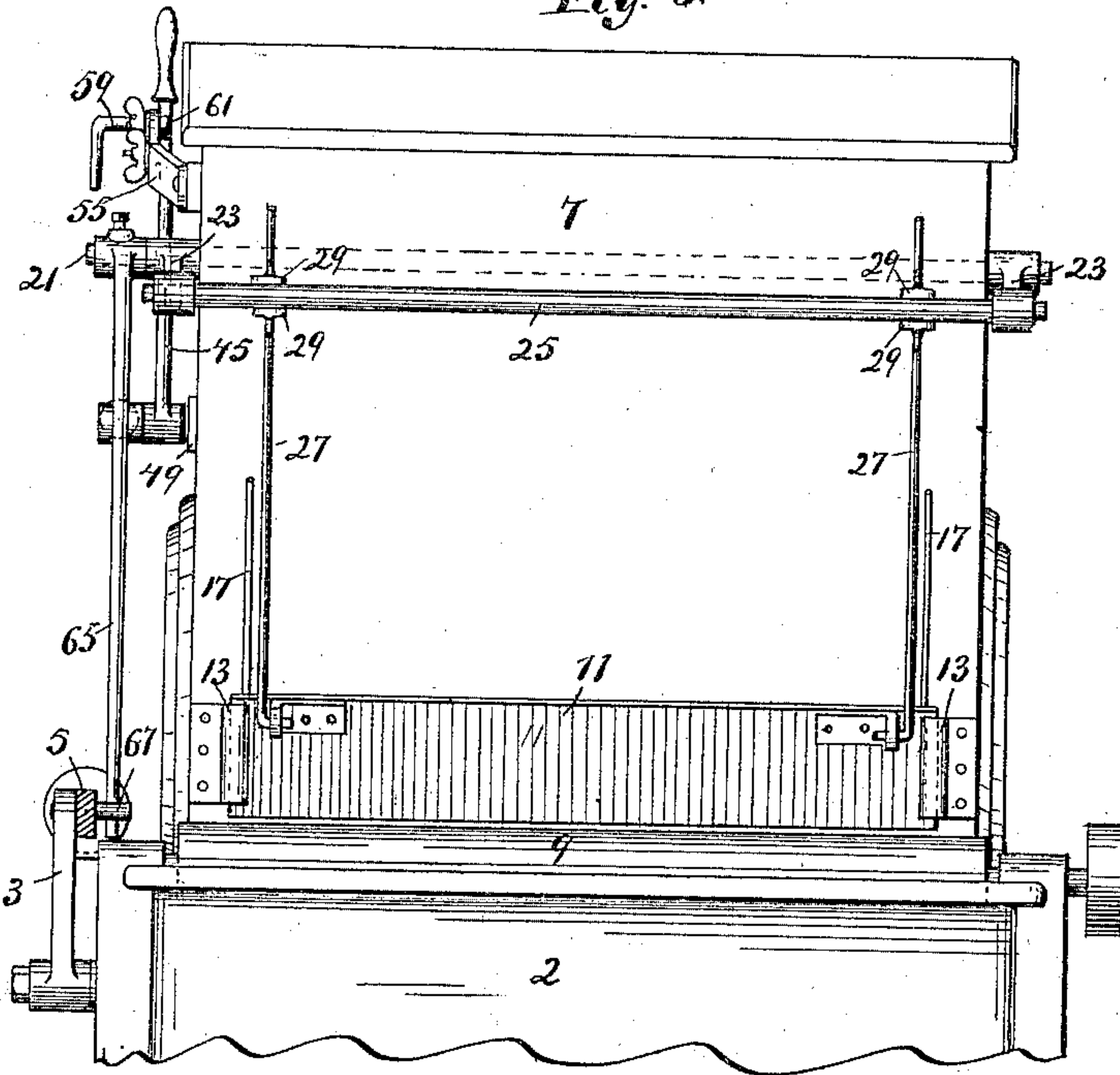
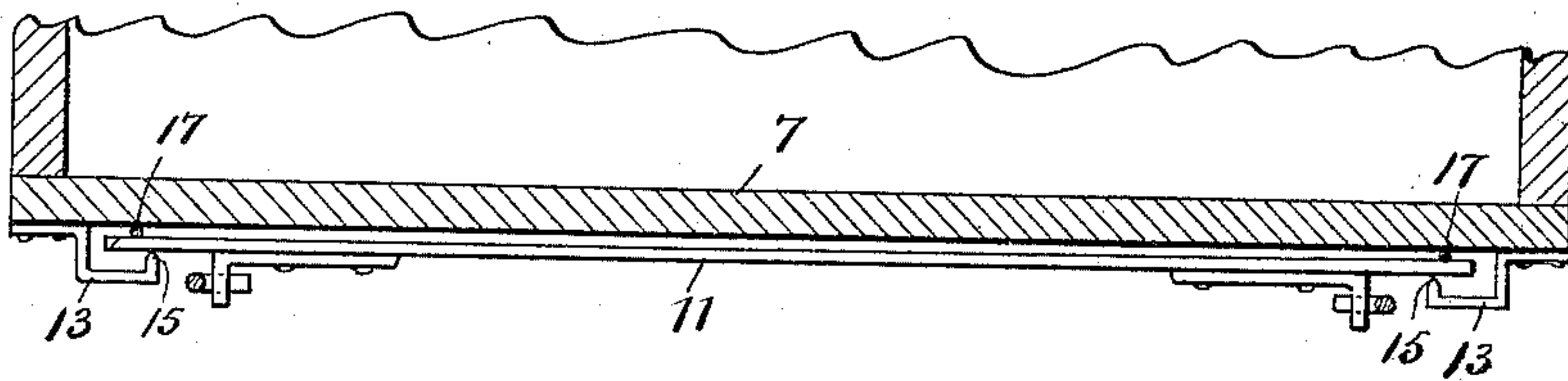


Fig. 4.



Witnesses.
a. m. gaskill
J. Jensen

Inventor.
Charles N. McFarland.

By Paul Herwin attys.

UNITED STATES PATENT OFFICE.

CHARLES N. MCFARLAND, OF MINNEAPOLIS, MINNESOTA.

AUTOMATIC FEEDER.

SPECIFICATION forming part of Letters Patent No. 409,331, dated August 20, 1889.

Application filed January 28, 1889. Serial No. 297,767. (No model.)

To all whom it may concern:

Be it known that I, CHARLES N. MCFARLAND, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Automatic Feeders, of which the following is a specification.

This invention relates particularly to improvements in automatic feeders for roller-mills; and the objects I have in view are to provide a device of improved construction by means of which the stock passing to the grinding-rolls will be automatically regulated and which can, whenever desired, be operated by hand to cut off the feed, and may also be operated by the mechanism which spreads the grinding-rolls so that as the rolls are separated the feed will be shut off.

The invention consists, generally, in the construction and combination hereinafter described, and particularly pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is an end elevation of my improved device, showing also a portion of the roller-mill casing and the operating-rod for moving the rolls. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a side elevation of the same, and Fig. 4 is a detail section of one of the gates.

In the drawings, 2 represents a portion of the roller-mill casing, which, as here shown, is provided with an ordinary form of roll-operating levers 3 and operating-rod 5.

7 represents the feed-hopper, which is provided with the feed-rolls 9, which are operated in the usual manner. The hopper is provided at each side above the feed-roll 9 with a vertically-sliding gate 11. This gate is adapted to be set down close to the top of the roll or to be moved up some distance therefrom, thereby either shutting off the feed or permitting a greater or less quantity to pass over the rolls, according as the gate is more or less open. In order to support the gate and at the same time to prevent its being clogged by an accumulation of dust around its bearings, I prefer to support it by the means shown in Figs. 3 and 4.

As here shown, an angle-iron 13, having an inturned knife-edge 15, is arranged at each

end of the gate 11, being secured to the outer wall of the hopper. The ends of the gates project into these angle-irons, resting against the knife-edges 15. The spaces within the angle-irons are left open both at the top and bottom, so that any dust which accumulates within the angle-iron may fall out at the bottom. Wires 17 are preferably arranged on the outer wall of the hopper to form a bearing for the inner surface of the sliding gate.

Mounted in bearings in the end walls of the hopper are the transverse shafts 19 and 21. These shafts preferably extend through the ends of the hopper, and to them are secured the crank-arms 23, which extend outward beyond the walls of the hopper and support the rods 25. Rods 27 are connected to each end of the gate 11 and pass through the rods 25. The upper ends of the rods 27 are screw-threaded, and thumb-nuts 29 are arranged upon these rods at opposite sides of the rod 25. By means of the nuts 29 these rods may be adjusted so as to regulate the throw of the gate.

Secured to the shaft 19 within the hopper is a plate or board 31, which extends, preferably, in an inclined direction a part of the distance across the hopper. This plate is in such position that the stock passing into the hopper through the spout 39 will fall upon the plate, which will be depressed more or less in proportion to the amount of stock there is in the hopper. The shaft 19 is provided with the crank-arm 33, and the shaft 21 with the oppositely-projecting crank-arm 35. These arms are connected by the connecting-rod 37, and thereby the movements of the shaft 19 are imparted to the shaft 21. The shaft 19 is also provided upon the outside of the hopper with a crank-arm 41, to which is pivoted the rod 43. The rod 43 is also pivoted to the end of the lever 45, that is mounted upon a stud 47. The rod 43 passes through a lug 49, secured upon the wall of the hopper, and a spring 51 is arranged upon the rod 43, one end bearing against the lug 49 and the other against a collar 53, secured upon the rod 43. The lever 45 passes under a quadrant-shaped plate 55, having a slot 57 therein. The lever is provided with a clamping-screw 59, by means of which it may be clamped and locked

to the plate at any point for the purpose of giving a fixed feed. I also arrange bolts 61, provided with thumb-nuts in the slot 57 in the plate 55. These bolts may be secured at 5 any desired points in the slot 57, and thus serve to limit the movement of the lever 45. In order that the feed may be shut off when the rolls are separated, I prefer to secure an arm 65 upon one of the shafts 19 and to extend it down beside the bar 5. The bar 5 is 10 provided with a lug 67, which strikes against the lower end of the arm 65 as the bar 5 is moved to separate the rolls, and the shaft 19, being thereby turned, both of the gates will 15 be closed.

While I have here shown the device applied to a double feeder for a four-roller mill, it will be understood that it may, if preferred, be used with a single feeder in connection with a single pair of rolls. 20

I claim as my invention—

1. The combination, in a device of the class

described, with the feed rolls and hopper, of the sliding gate arranged upon the outside of the hopper, the angle-irons 13, secured to the 25 outside of the hopper and provided with the knife-edges 15, bearing upon said gate, substantially as described.

2. The combination, with the hopper and feed-roll, of the shaft 19, mounted in said hopper, the plate 31, arranged within said hopper 30 and secured upon said shaft, the arms 23 upon said shaft, the rod 25, supported by said arms, the sliding gate 11, and the adjustable rods connecting said gates and said rod 25, 35 the pivoted lever 45, connected with said shaft 19, and provided with a locking device, substantially as described.

In testimony whereof I have hereunto set my hand this 23d day of January, 1889.

CHARLES N. MCFARLAND.

In presence of—

A. C. PAUL,

A. M. GASKILL.