

No. 641,354.

Patented Jan. 16, 1900.

H. A. ADAMS.
CORN SHELLEK.

(Application filed July 20, 1899.)

(No Model.)

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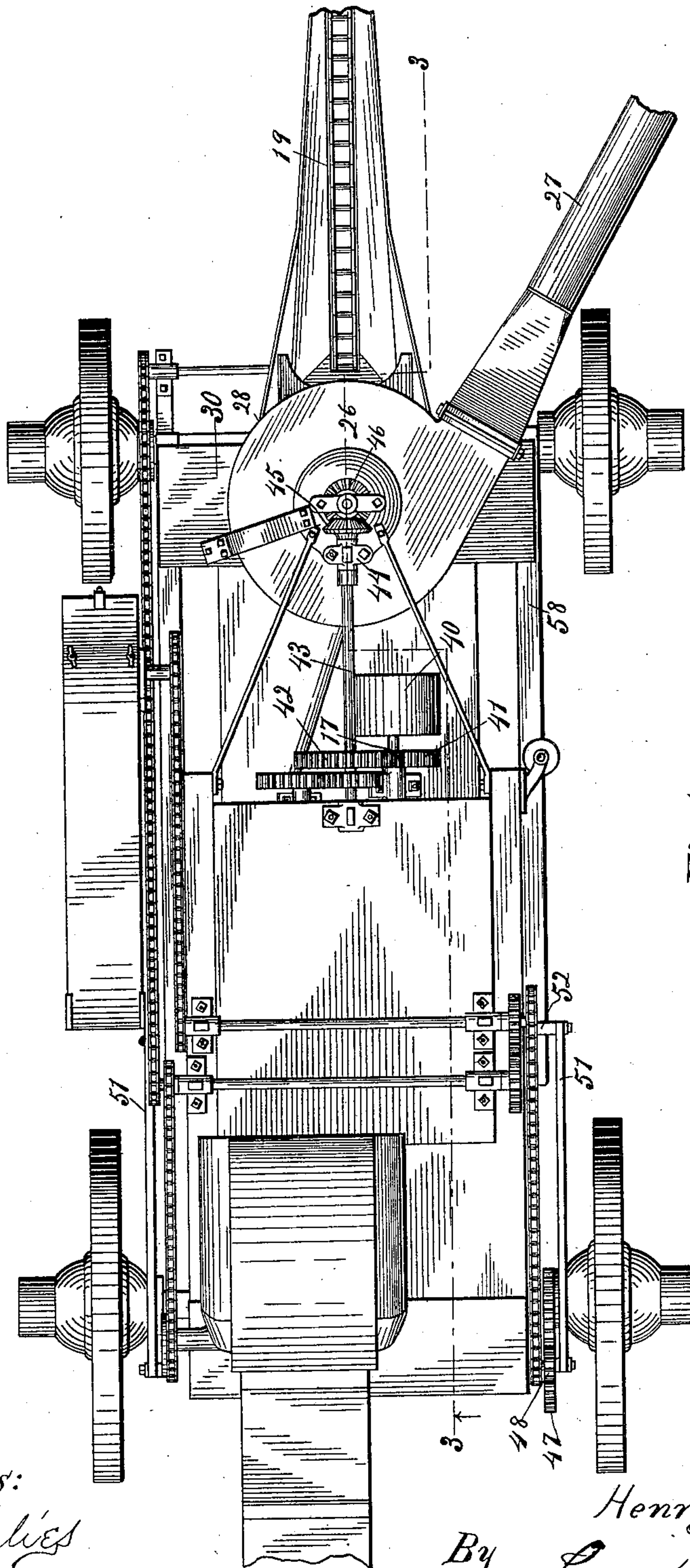


Fig. 1.

Witnesses:
W. C. Coates
W. H. Cotton.

Inventor:
Henry A. Adams.
By Louis K. Gillson
Atty.

No. 641,354.

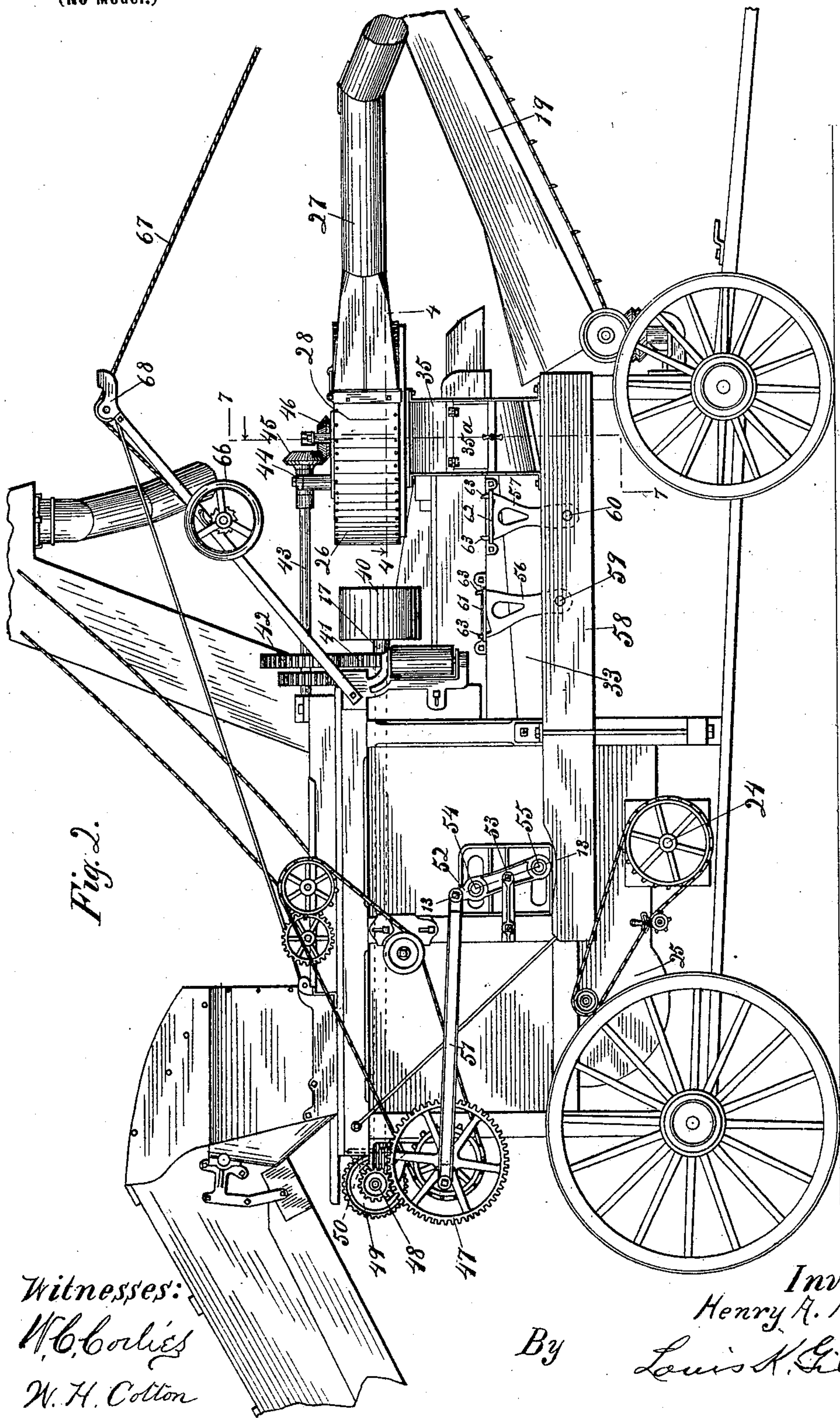
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Witnesses:
W. C. Corlies
W. H. Cotton

Inventor:
Henry A. Adams.
By
Louis K. Gibson
Atty.

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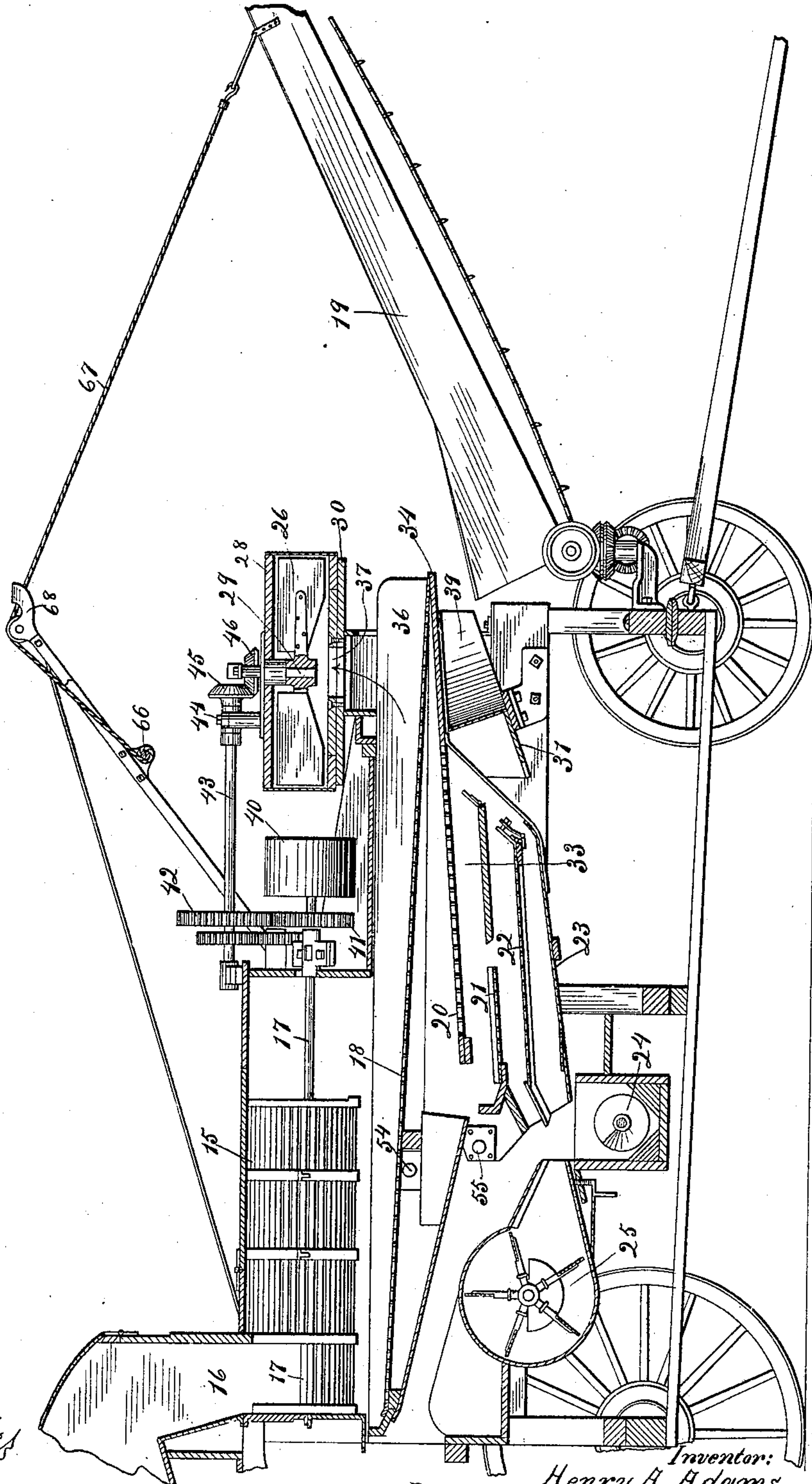
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(No Model.)

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Fig. 3.



Witnesses:

W. C. Corlies

W. H. Cotton,

By

Inventor:
Henry A. Adams.
Louis H. Gileson
Atty:

No. 641,354.

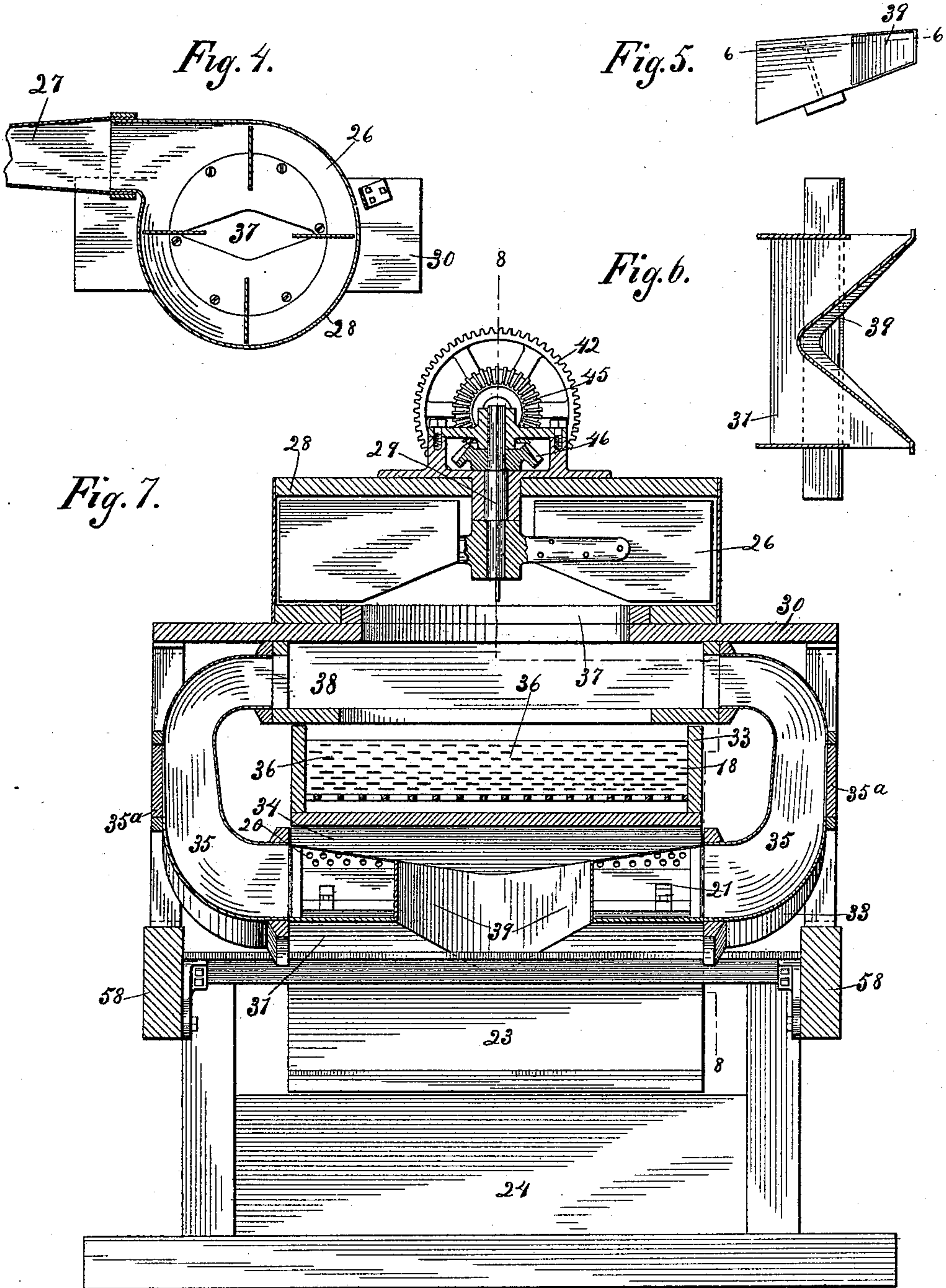
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H. A. ADAMS.
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(Application filed July 20, 1899.)

(No Model.)

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Witnesses:
W. C. Collins
W. H. Cotton.

Inventor:
Henry A. Adams.
By Louis K. Gilson
Atty.

No. 641,354.

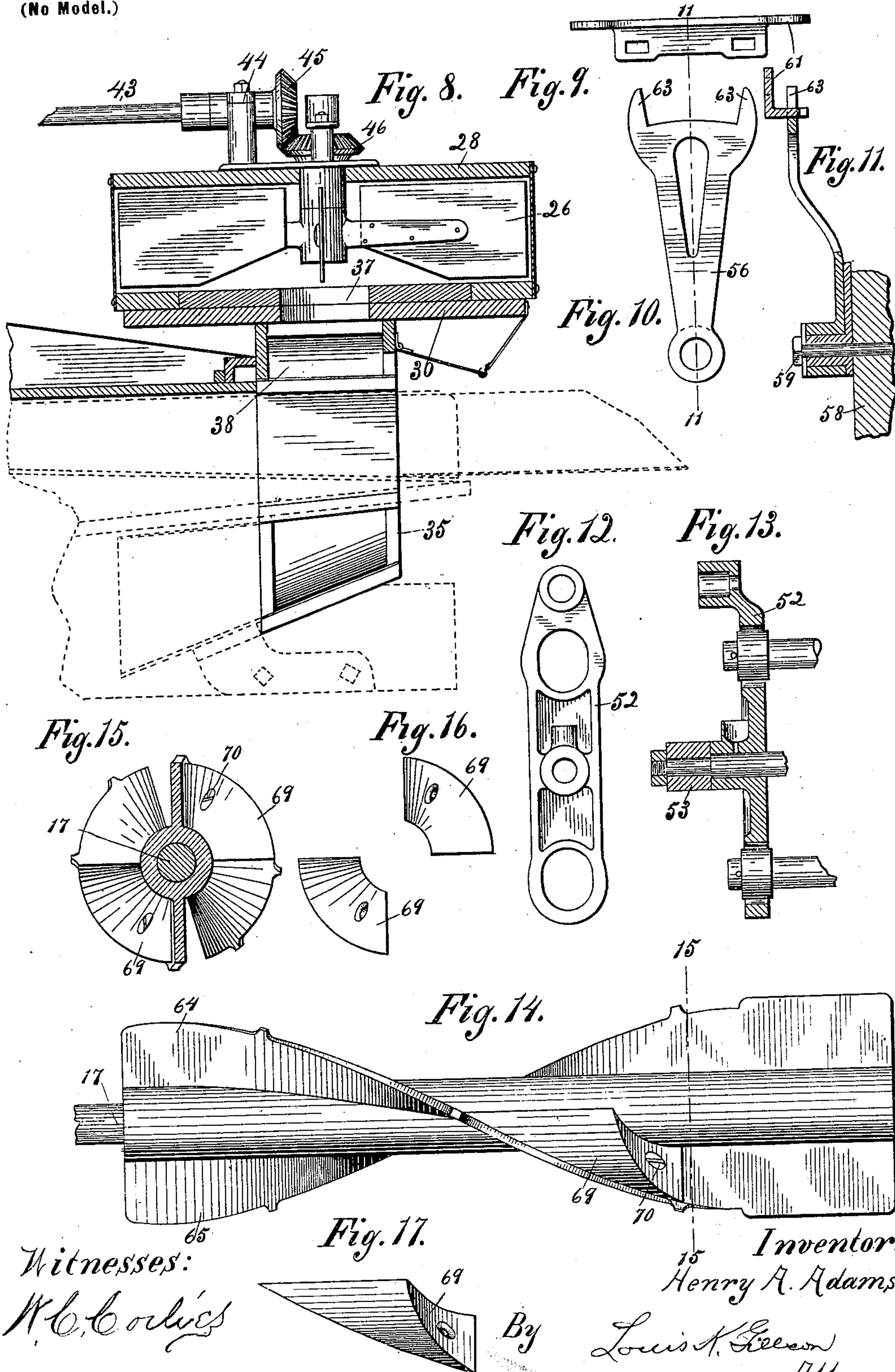
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(No Model.)

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Fig. 18.

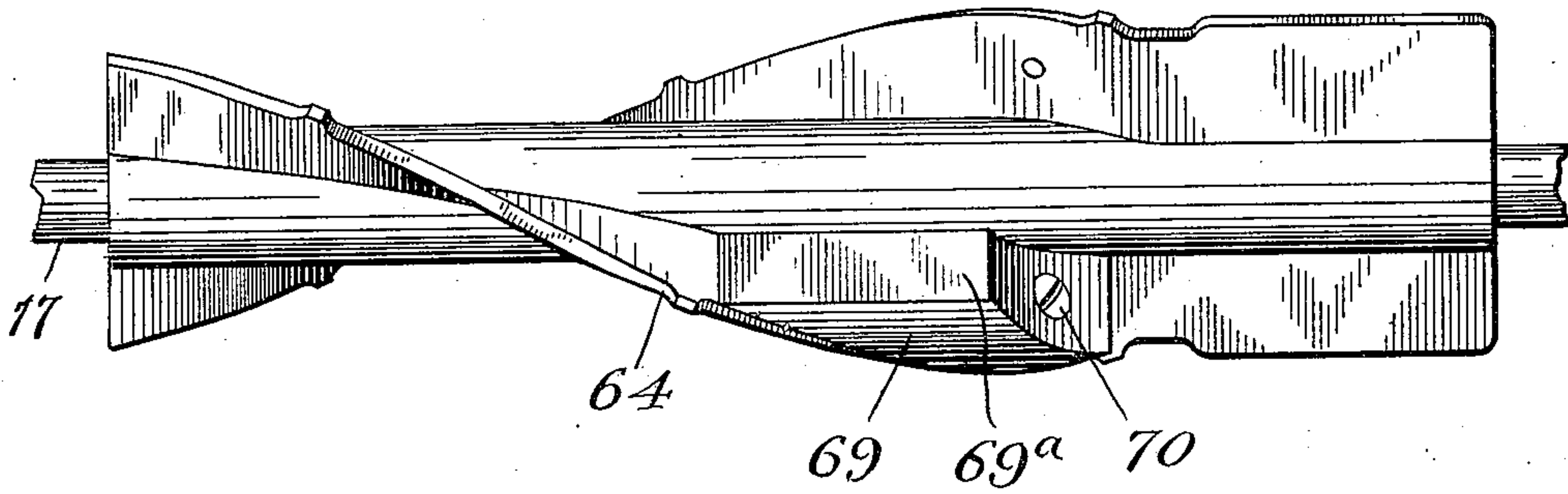
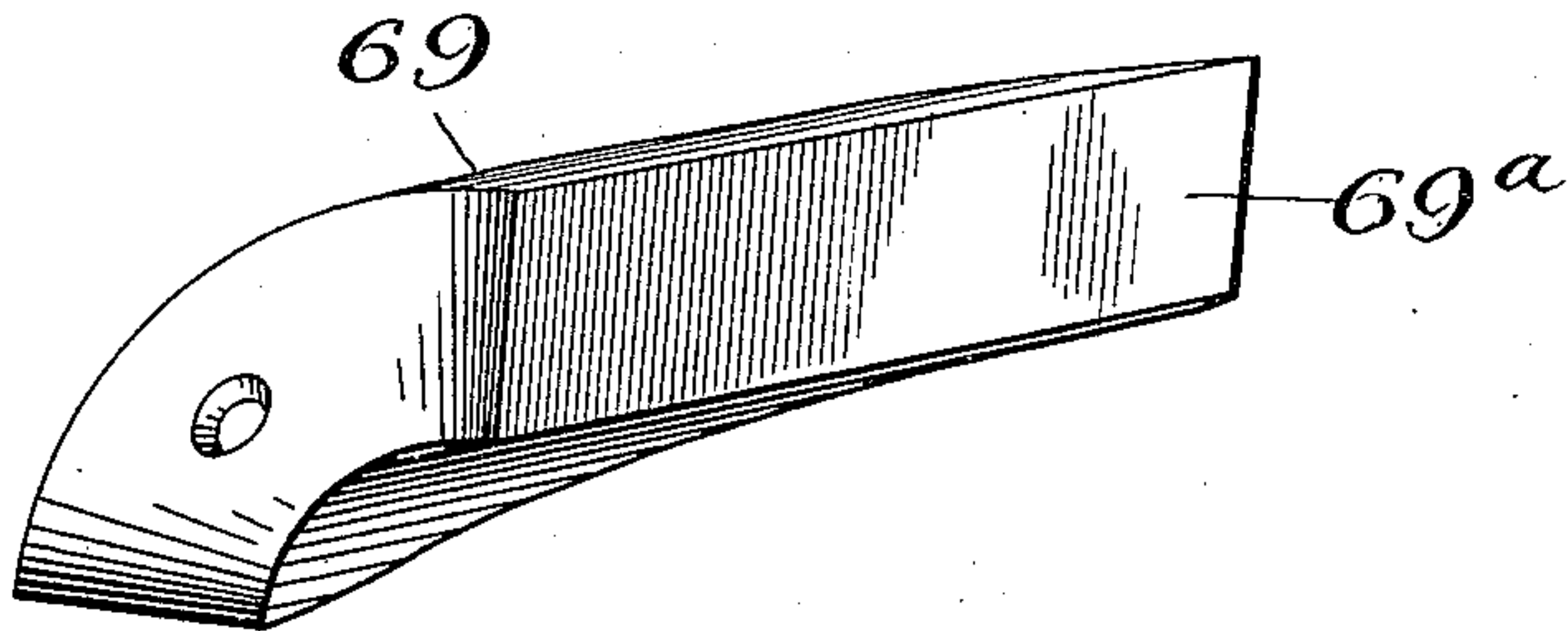


Fig. 19.



Witnesses:

W. C. Collier
W. H. Cotton

By

Inventor:
Henry A Adams
Louis V. Gilson Atty.

UNITED STATES PATENT OFFICE.

HENRY A. ADAMS, OF SANDWICH, ILLINOIS.

CORN-SHELLER.

SPECIFICATION forming part of Letters Patent No. 641,354, dated January 16, 1900.

Application filed July 20, 1899. Serial No. 724,440. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. ADAMS, a citizen of the United States, and a resident of Sandwich, county of De Kalb, and State of Illinois; have invented certain new and useful Improvements in Corn-Shellers, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

The invention herein described relates more particularly to that type of corn-shellers which is shown in Letters Patent No. 538,856, granted to me May 7, 1895; and its objects are to simplify the construction of machines of this character and to provide for the complete elimination and control of the dust developed in the shelling operation. These objects are attained by means of the mechanism hereinafter fully described and which is illustrated in the accompanying drawings, forming a part hereof, in which—

Figure 1 is a plan view of the machine. Fig. 2 is a side elevation of the same. Fig. 3 is a longitudinal section on the line 3 3 of Fig. 1. Fig. 4 is a plan section of the exhaust-fan on the line 4 4 of Fig. 2. Fig. 5 is a detail side elevation of one of the parts of the machine. Fig. 6 is a plan section on the line 6 6 of Fig. 5. Fig. 7 is a transverse vertical section on the line 7 7 of Fig. 2. Fig. 8 is a detail vertical section on the broken line 8 8 of Fig. 6. Figs. 9 and 10 are details of parts of the machine. Fig. 11 is a detail section on the line 11 11, drawn through Figs. 9 and 10. Fig. 12 is a detail of a part of the machine. Fig. 13 is a detail section of the same part and coöperating parts, taken on the line 13 13 of Fig. 2. Fig. 14 is a detail of the beater. Fig. 15 is a transverse section on the line 15 15 of Fig. 14. Figs. 16 and 17 are details of a filling-block adapted for attachment to the beater. Fig. 18 is a detail of the beater shown in a different angular position from Fig. 14; and Fig. 19 is a perspective of the filling-block adapted to be attached to the beater, showing its front face.

The machine shown in the drawings is provided with a shelling-cylinder 15, the walls of which consist of longitudinally-disposed bars, against which the corn is thrown by means of suitable beaters and between which bars the grain is free to escape. The cylinder has a

lateral opening at one end, to which leads a feed-hopper 16, and near the other end a lateral opening for the discharge of the cobs, which fall upon a reciprocating conveying-riddle 18, leading to and discharging into the cob-stacker 19. The grain falling upon and through the riddle 18 is delivered to a lower set of riddles 20 and 21 and thence by means of the inclined shoes 22 and 23 led to a conveyor 24, which carries it to the usual elevator.

A blower 25 is arranged so as to drive a blast of air forwardly over the shoes 22 and 23 to the forward end of the machine and toward the cob-discharge aperture. Instead, however, of issuing from this aperture, as was the case in the machine shown and described in my earlier patent, hereinbefore mentioned, this blast is taken up by the suction of an exhaust-fan 26, mounted upon the top of the case of the machine and provided with a delivery-spout 27, through which the dust is discharged in any desired direction and at any desired distance from the machine, the case of the fan being rotatable about the fan-spindle 29 and upon the table 30, which supports it.

An inclined floor 31 leads upwardly from the forward end of the lower riddle-shoe 23 to a front wall 32, which, with this floor, the side walls 33 of the case of the machine, and the shoe 34, leading forwardly from the riddle 20, inclose a chamber into which the blast from the fan 25 is driven. From each side of this chamber a wind-chest 35 leads upwardly, and returning enters the passage 36, through which the cobs are discharged by means of the conveyer 18, the mouths of these wind-chests being in line with the eye of the exhaust-fan and being connected therewith by a channel 38, crossing the roof of the passage 36. The blast from the blower 25 as it passes over the floor 31 is divided by a V-shaped deflector-plate 39, located upon this floor and guiding the current to the wind-chests at the sides of the chamber.

Power is applied to the machine by means of the belt-pulley 40, mounted upon the beater-shaft 17, and is distributed to the various moving parts of the machine by suitable mechanism, only so much of which will be described as relates to the new features of the machine. A gear-wheel 41, mounted upon

the beater-shaft 17, meshes with a similar wheel 42, mounted upon a shaft 43, journaled longitudinally above the case of the machine, its forward end being supported by a bracket 44, arching over the case 28 of the exhaust-fan, the shaft being provided with a beveled gear 45, meshing with a similar gear 46, fixed upon the spindle 29 of the fan, whereby the fan is driven from the shaft 17.

A gear-wheel 47, carried upon a suitable shaft journaled across the rearward end of the machine, is driven by means of a pinion 48, mounted upon a parallel shaft and receiving its motion by means of beveled gears 49 and 50, the one upon the last-named shaft and the other upon the shaft 17. From a crank-pin fixed to the wheel 47 a pitman 51 leads to and actuates an oscillating bar 52, which is pivoted to a bracket 53, secured to the framing of the machine. The bar 52 is connected to the supporting-frame of the riddles 18 and 20, respectively, at 54 and 55, and thereby causes the reciprocation of these riddles and their appurtenances. The frames of these two riddles are supported, respectively, by oscillating rocker-arms 56 57, pivoted to the side sills 58 of the machine at 59 and 60, respectively. The upper ends of the arms 56 57 are curved, the center of the arc of their curvature being their respective pivot-points, and upon these curved ends rest bearing-plates 61 and 62, attached, respectively, to the frames of the riddles 18 and 20. These arms are held in engagement with the bearing-plates resting upon them by means of pins 63, projecting upwardly from their ends and passing through suitable apertures in the plates. By this mechanism for operating and supporting the riddles I am able to dispense with expensive eccentrics and to do the work of four eccentrics with two pitmen; and I furthermore secure an easier movement of the riddles upon the supporting mechanism described than was possible when they were suspended by means of flexible links, as shown in my earlier patent.

When the corn is dry, it moves through the shelling-cylinder more easily than when wet, as in the latter condition the friction is materially increased. While the shelling action is more rapid with dry corn, the ease with which the ears move one upon the other is still more increased, and for that reason it is sometimes desirable to provide means for retarding their passage through the cylinder.

In machines of this type, in which the shelling action is accomplished by means of a cylinder composed of bars coöperating with rotating parts within the cylinder, the corn is advanced through the cylinder by means of a screw conveyer, which may form the whole or part of the beating mechanism. In the machine here shown the beater consists of flanges 64 65, mounted upon the shaft 17 and being curved through a portion of their length to substantially helical form.

As the speed with which the corn is con-

veyed through the shelling-cylinder will depend upon the pitch of the beater-blades, I employ as means for retarding the corn filling blocks or plates 69, approximately triangular in form and adapted to be secured to the front face of the curved portion of the beater-blade by means of a screw 70 and having a face 69^a, the plane of which is substantially parallel with the axis of the shaft 17. I show such filling-block as being applied to the rearward end of the curved portion of the blade, the thicker portion of the block or base of the triangle being toward the rearward or straight portion of the blade, so that the length of the curved face of the beater, which acts as a conveyer for advancing the corn, is shortened correspondingly to the length of the block or plate. While I show this filling block or plate as being applied at the rearward end of the curved portion of the beater, any other manner of applying it which will change the angularity of that portion of the beater to which it is attached, so as to change the advancing force of the beater, will come within the scope of the invention. Usually it is not necessary to employ this adjunct to the machine, but when it is found in practice that the corn to be acted upon is so dry that it is liable to escape from the shelling-cylinder before all of its kernels have been loosened the plates or blocks 69 may be attached to the beater in a very few minutes, and the difficulty is thereby entirely obviated.

Any other means for shortening the conveyer or reducing its driving power will come within the scope of the invention. I show and describe a simple and effective means of accomplishing this result, but do not desire to be limited specifically thereto.

In order to afford access to the interior of the wind-chests 35 for the purpose of cleaning, I provide each of them with an outwardly-opening door 35^a.

The cob-stacker 19 is mounted in the usual manner; but its elevation is determined by means of a windlass 66 and cable 67, leading therefrom and passing over a supporting arm or crane 68.

I claim as my invention—

1. In a corn-sheller, in combination, a case, shelling, conveying and riddling mechanism within the case, a blower arranged to drive an air-current below the riddles toward the cob-delivery end of the machine, an exhaust-fan above the cob-passage and having its eye open thereto, and wind-chests for leading the blast from the blower from below the cob-delivery passage to the field of suction of the exhaust-fan.

2. In a corn-sheller, in combination, a case, shelling mechanism, a cob-carrier leading therefrom to the cob-delivery orifice of the case, riddles below the carrier, riddle-shoes for conveying the grain to a receiver, a blower arranged to drive a blast of air over the riddle in the direction of delivery of the cobs, a deflector for dividing the blast, wind-chests

leading through the side walls of the case for receiving the blast from the deflector, an exhaust-fan mounted above the cob-passage and having its eye open thereto, the wind-chests
5 leading to the field of suction of the fan.

3. In a corn-sheller, in combination with a case having a cob-discharge passage, a transverse channel in the roof of such passage near its delivery end, and a chamber below the
10 passage, of wind-chests leading laterally from such chamber and entering the cob-passage in line with its roof-channel, a blower arranged to drive a blast through the interior of the case and into the chamber named, and
15 an exhaust-fan having its eye open to the roof-channel of the cob-passage.

4. In a corn-sheller, the combination with a shelling-cylinder, a rotatable shaft within the cylinder and a beater fixed upon the shaft
20 and being oblique to the axis thereof, of a block or plate adapted to be attached to the face of the beater, such block or plate being of greater thickness at its rearward than at its forward end.

5. In a corn-sheller, the combination with 25 a shelling-cylinder, a rotatable shaft within the cylinder and a beater fixed upon the shaft and being oblique to the axis thereof through a portion of its length and parallel with such axis through a portion of its length, of a block 30 or plate adapted to be attached to the face of the beater, the plane of the front face of the block being oblique to the plane of the face of the beater at the point of attachment.

6. In a corn-sheller, the combination with 35 a shelling-cylinder, a rotatable shaft within the cylinder and a beater fixed upon the shaft and being oblique to the axis thereof through a portion of its length and parallel with such axis through a portion of its length, of a block 40 or plate adapted to be attached to the face of the beater at the rearward end of the oblique portion and having its front face substantially parallel with the axis of the shaft.

HENRY A. ADAMS.

Witnesses:

PAUL CARPENTER,
LOUIS K. GILLSON.