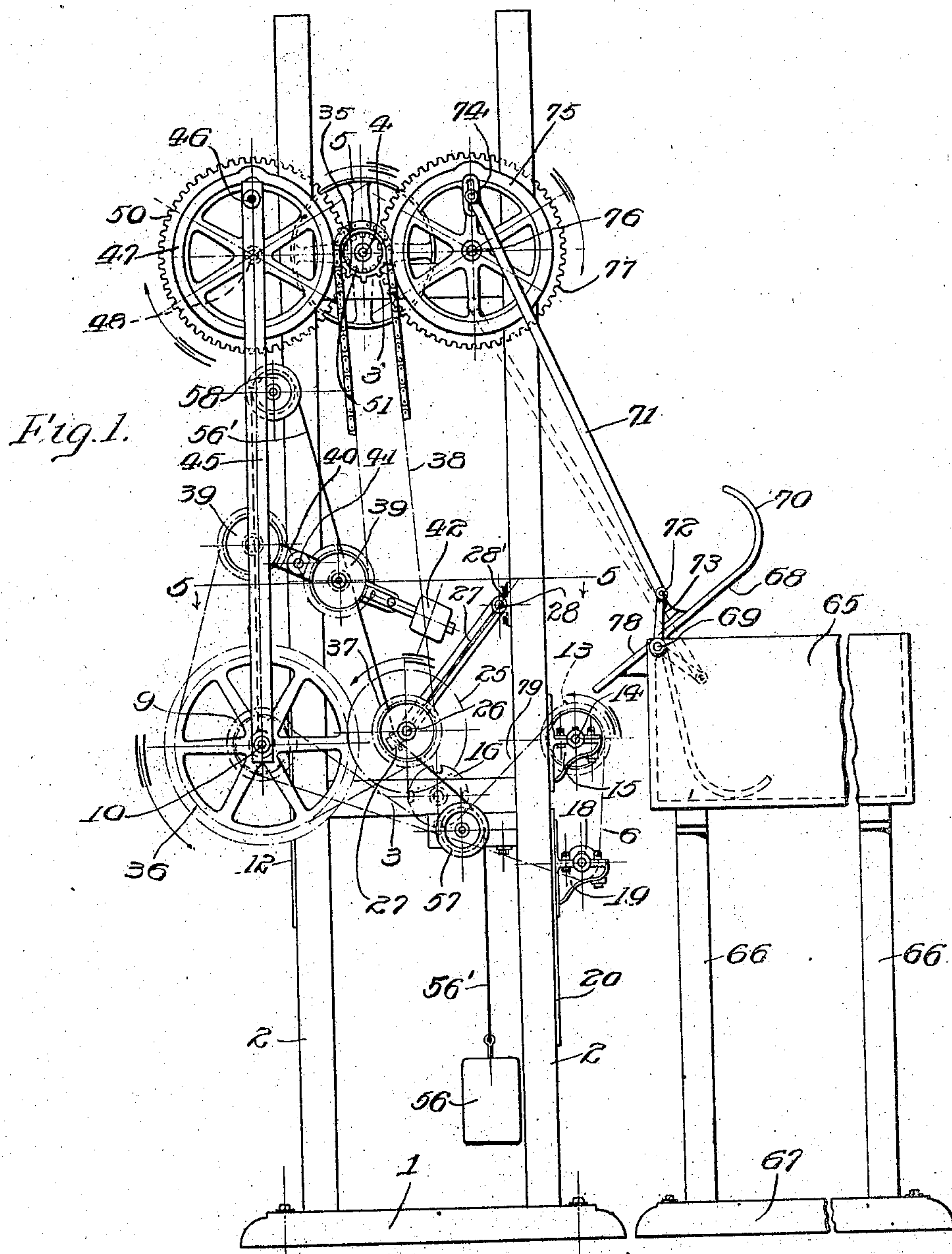


919,775.

G. ROTH.
HOG CLEANING MACHINE.
APPLICATION FILED MAY 15, 1908.

Patented Apr. 27, 1909.
5 SHEETS—SHEET 1.



Witnesses:

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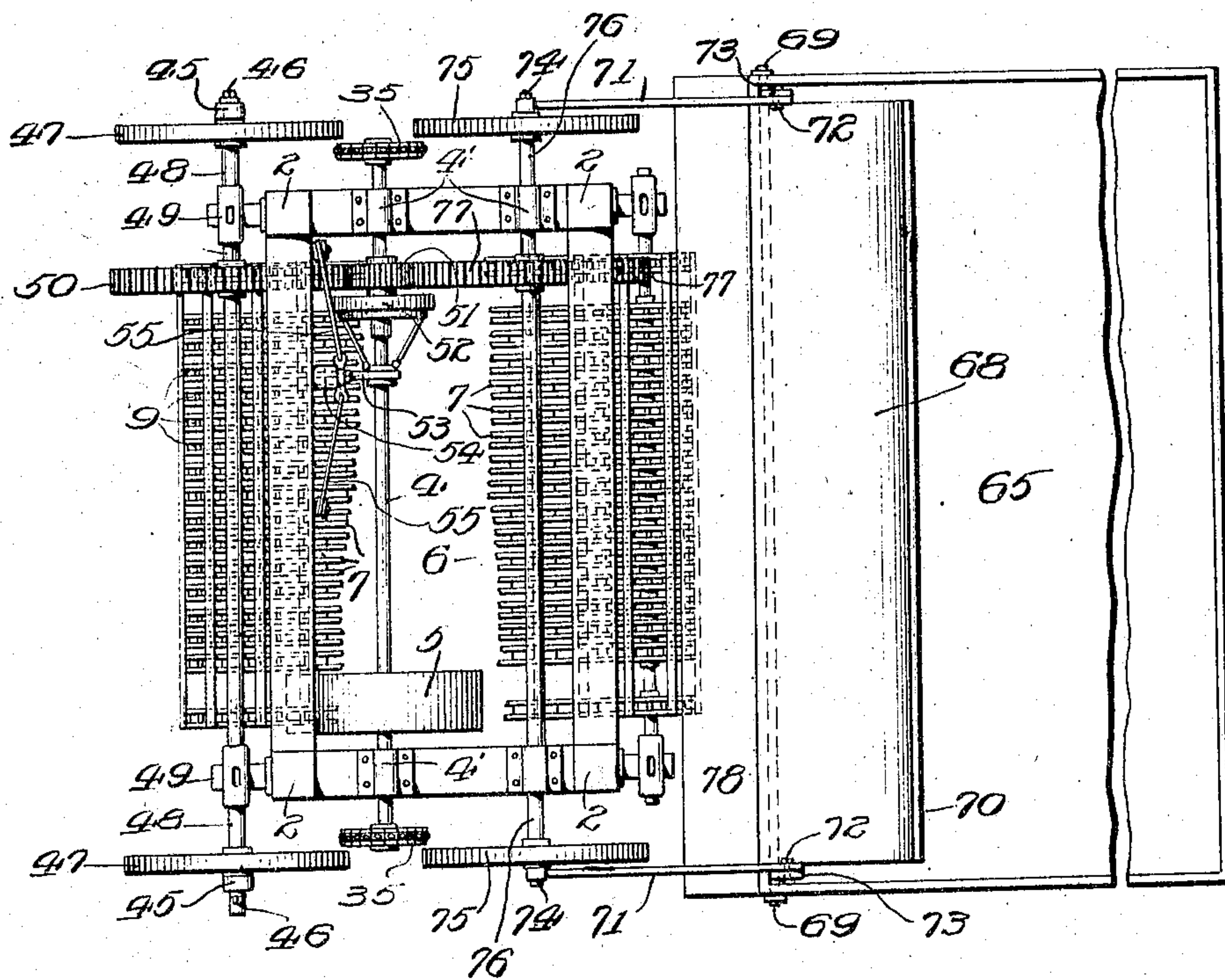
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5 SHEETS—SHEET 2.

Fig. 2.



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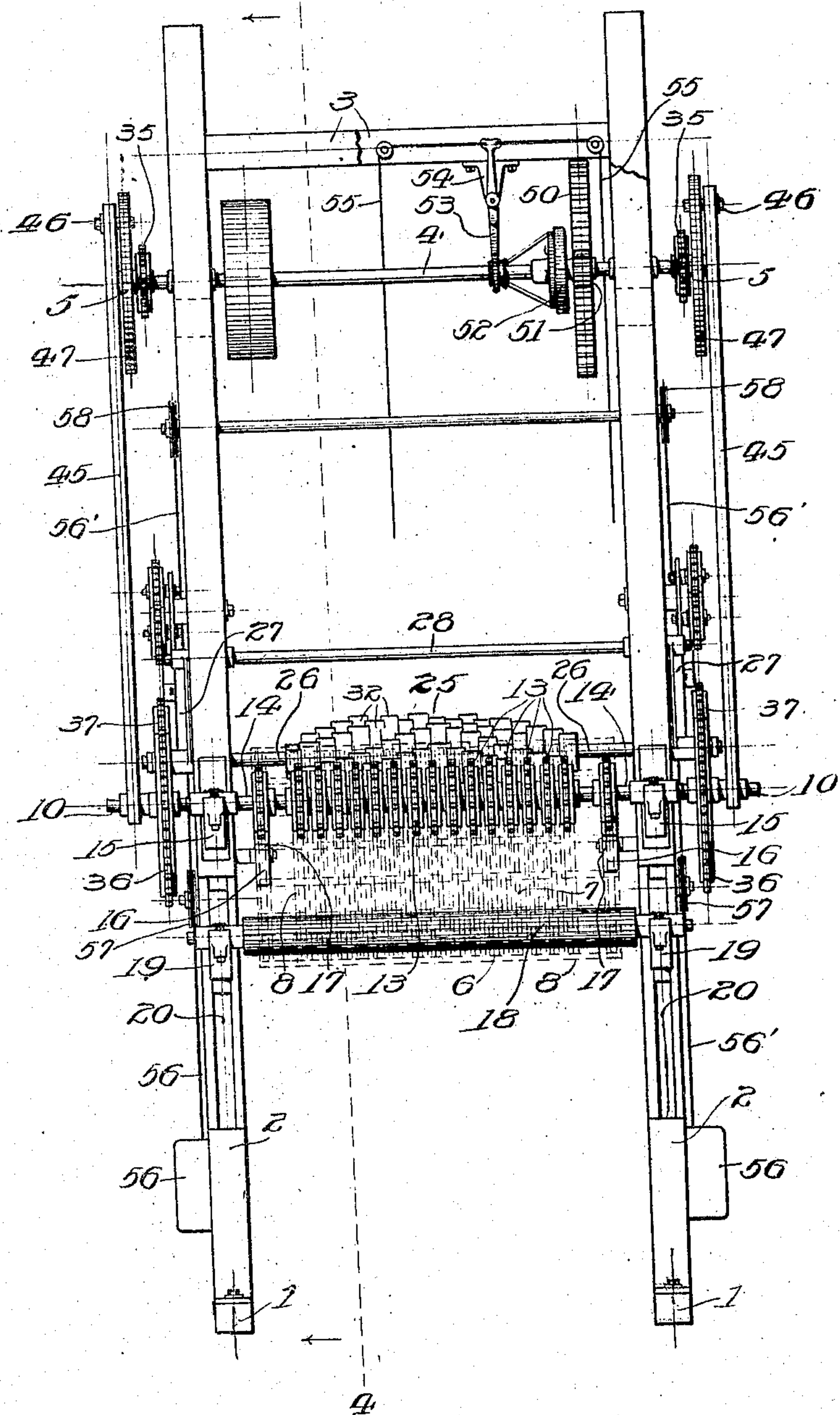
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5 SHEETS—SHEET 3.

Fig. 3



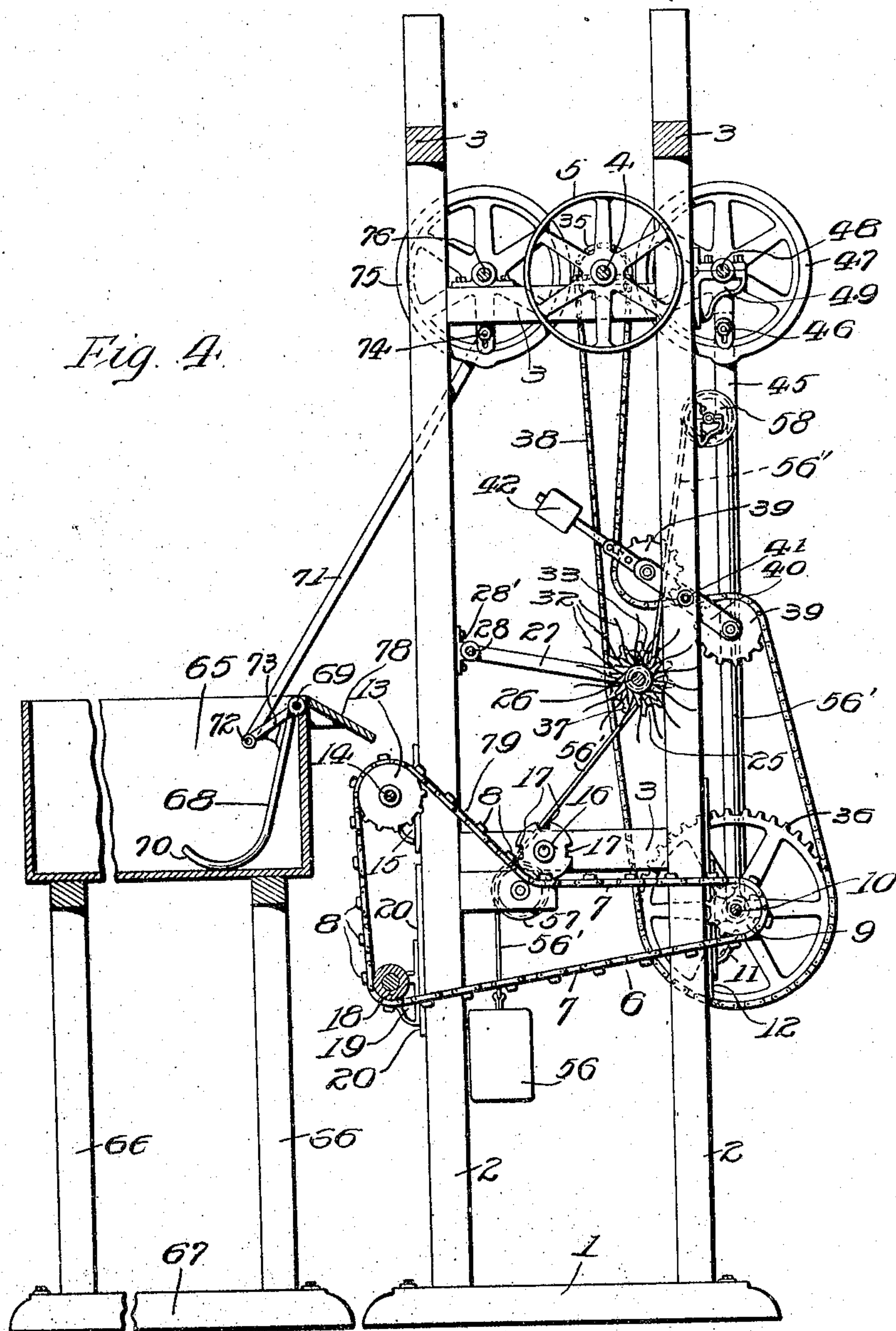
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5 SHEETS—SHEET 5.

Fig. 6.

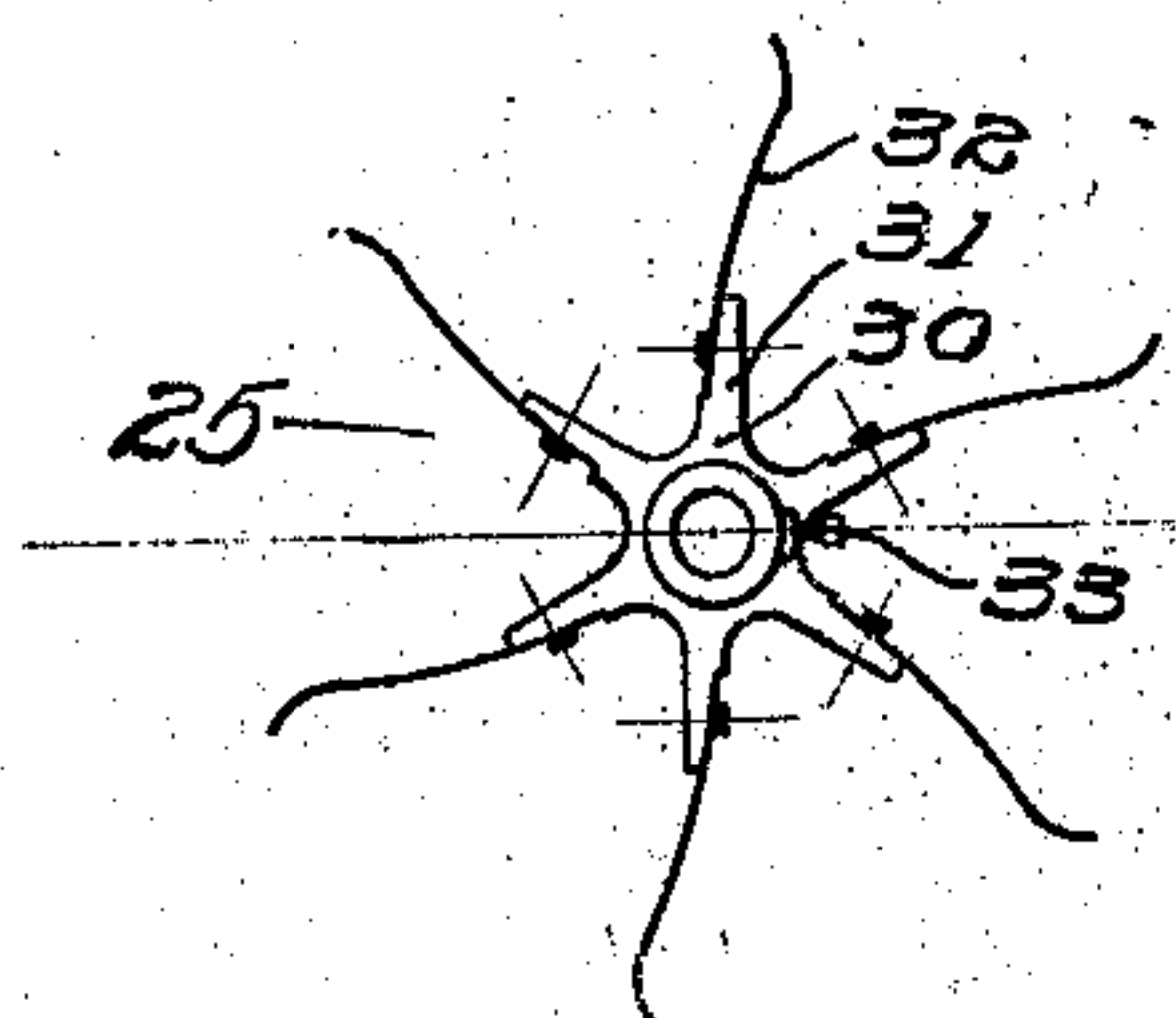


Fig. 7.

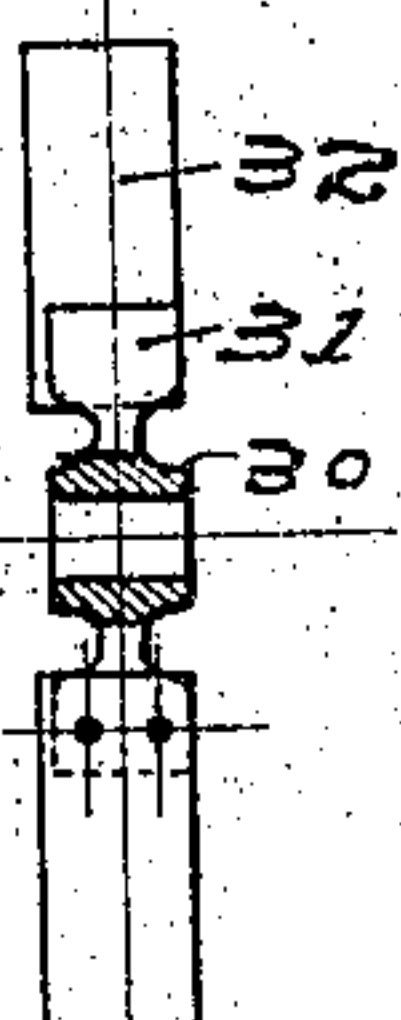


Fig. 8.

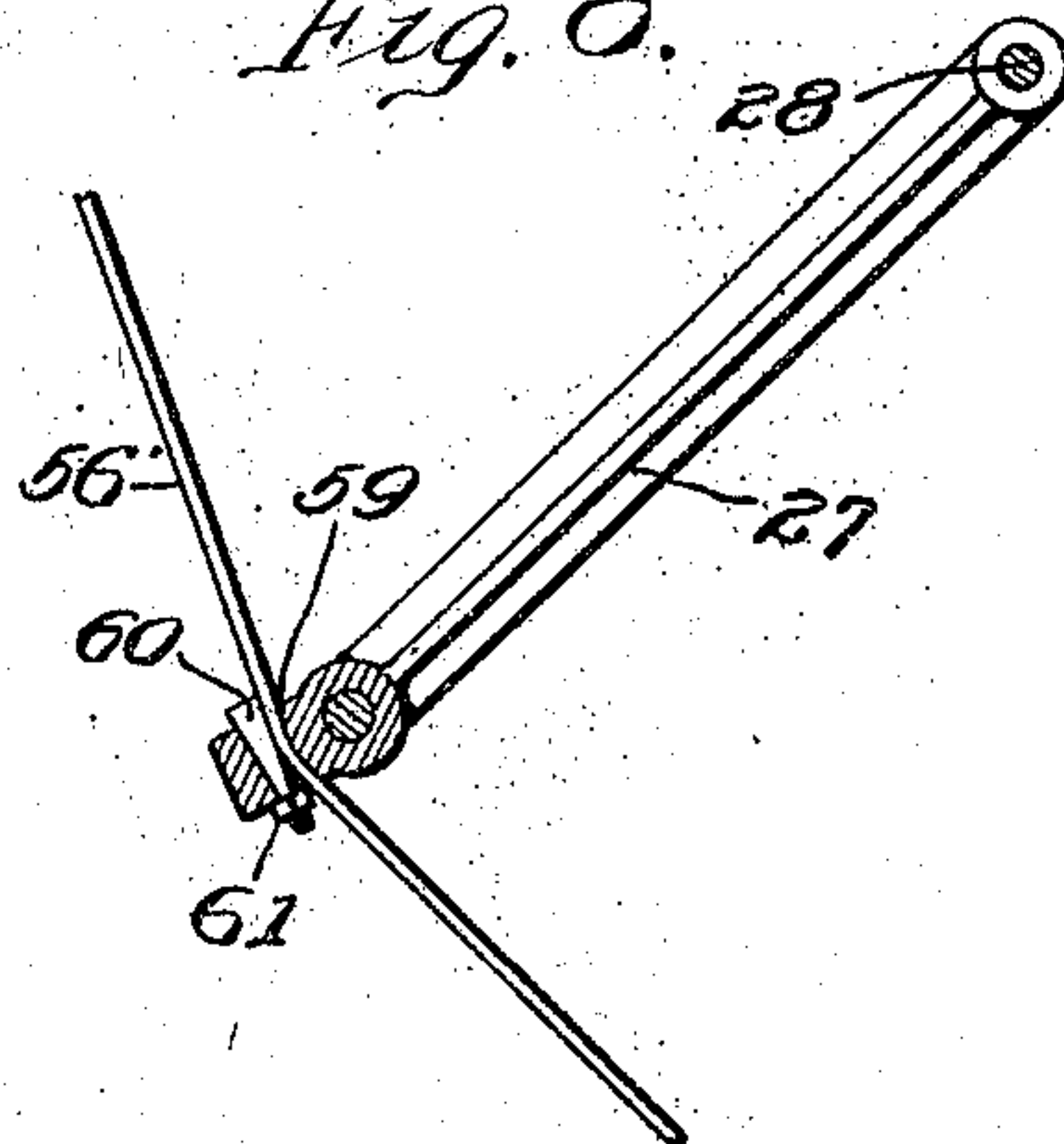
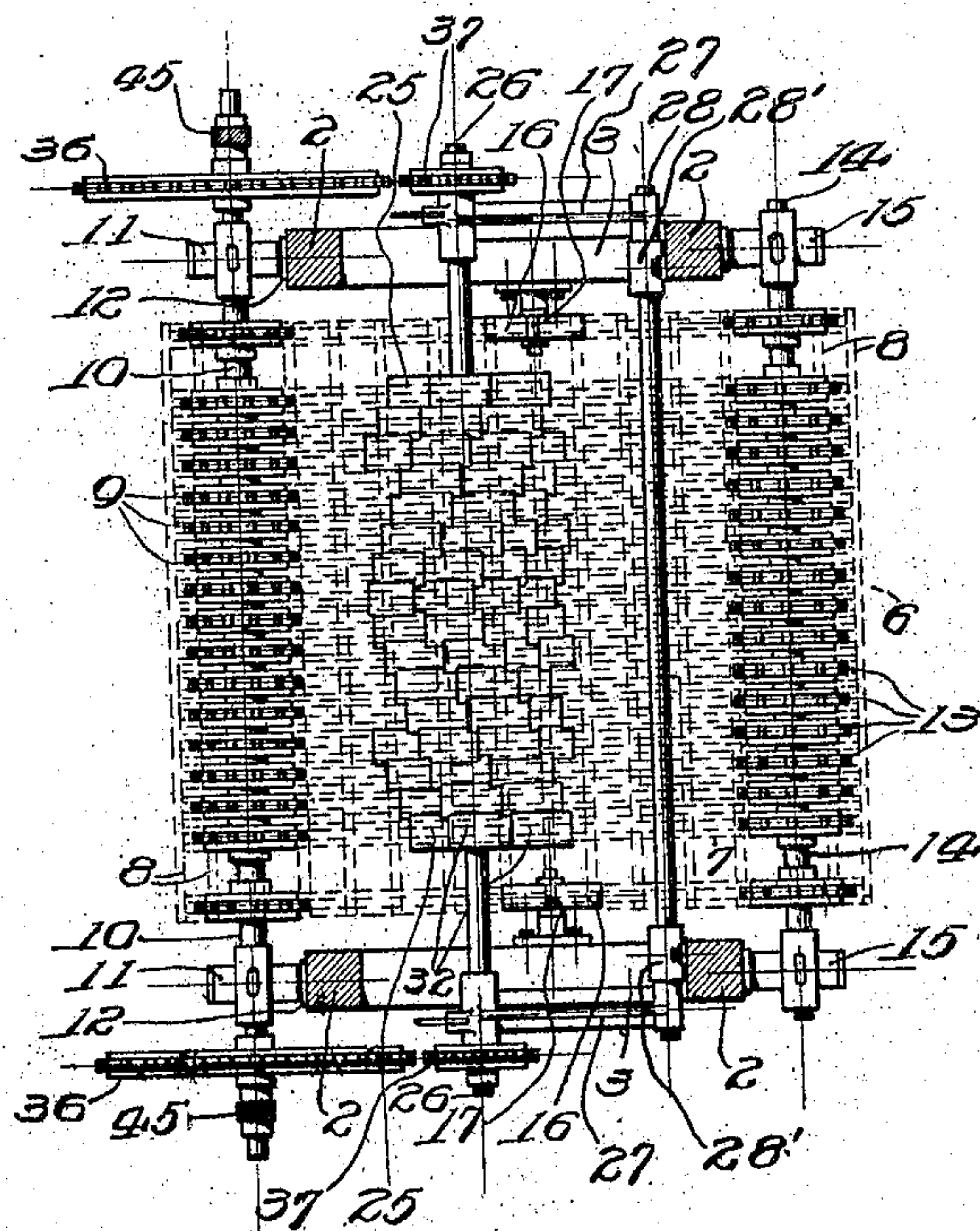


Fig. 5.



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UNITED STATES PATENT OFFICE.

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HOG-CLEANING MACHINE.

No. 919,775.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed May 15, 1908. Serial No. 432,959.

To all whom it may concern:

Be it known that I, GOTTLIEB ROTH, a citizen of the United States, and a resident of the city of Philadelphia, Pennsylvania, have invented certain new and useful Improvements in Hog-Cleaning Machines, of which the following is a full, clear, and complete disclosure, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to improvements in machines for removing dirt, hair, bristles and the like from hogs or other animals.

The main object of my invention is to provide a strong, durable and comparatively simple and inexpensive machine that will lift the animal from a scalding vat, place it upon a conveyer, carry it into operative position to be cleaned, clean it quickly and thoroughly, and convey it away from the cleaning mechanism.

Other objects of this invention will appear in the following specification and claims.

In the accompanying drawings, Figure 1 is a side elevation of a machine constructed in accordance with this invention; Fig. 2 is a top plan view of the upper portion of the same; Fig. 3 a front elevation of the same, parts thereof being removed for clearness; Fig. 4 a vertical section on line 4—4 of Fig. 3, but showing the machine at a different period of its operation; Fig. 5 a horizontal section on line 5—5 of Fig. 1; Figs. 6 and 7 are a side elevation and a vertical section, respectively, of one of the scraper elements; and Fig. 8 is a side elevation partly in section of a detail of the machine.

Referring to the drawings the machine comprises a main frame consisting of horizontal base beams 1, vertical beams 2 resting upon said base beams and forming the four vertical outer corners of the main frame and spaced horizontal beams 3 rigidly secured between the vertical beams to hold said vertical beams in position. This frame carries the main drive shaft 4 which extends horizontally and transversely of the machine, and is mounted upon bearings 4' fixed upon the oppositely disposed horizontal beams 3 adjacent the upper end of the frame. The main drive shaft carries a main driving pulley 5 rigidly secured thereto and which is driven in the usual manner from a countershaft or by any other suitable means. An endless conveyer 6 comprising a plu-

rality of sprocket chains 7 having spaced bars 8 secured thereto, is arranged beneath the main driving shaft. The conveyer chains 7 are carried by a series of sprockets 9, upon a horizontal shaft 10, at the rear of the machine, mounted in bearings 11 which are vertically slidable upon the ways 12, which are rigid with the vertical beams 2 of the main frame, and the chains also pass over a similar series of sprockets 13, arranged upon a horizontal shaft 14 mounted in bearings 15 upon the front side of the main frame. The upper side of the conveyer is depressed by means of a pair of idlers 16 which are arranged one upon each side of and over the conveyer and journaled upon the inner sides of the oppositely disposed lower horizontal cross bars 3 of the main frame. The idlers 16 are provided with spaced recesses 17 around their peripheries, the distances between the spaces on the idlers being equal to the distances between the transverse bars of the conveyer, so that the bars fall in the spaces of the idlers as the conveyer is rotated. A heavy idler 18 is provided in bearings 19 which are vertically slidable upon the ways 20, rigid with the front side of the front vertical beams 2, respectively, of the main frame, to keep the conveyer chains taut.

Mounted above the conveyer and adjacent the depression in the upper surface thereof is a rotary scraper or cleaner 25 comprising a series of scraper elements or sections mounted upon a transverse horizontal shaft 26 journaled at its ends in the lower ends of a pair of arms 27, the upper ends of which are secured to the ends of a shaft 28 pivoted in bearings 28' rigidly mounted upon the inner surfaces of the front vertical beams 2 of the main frame. Each section of the scraper comprises a hub 30 having radial arms 31 to each of which is secured a curved flat spring plate 32. Upon one side of each section the edges of the plates are substantially flush with one end of the hub, while upon the opposite side the edges of the plates project beyond the corresponding end of the hub, (see Fig. 7). The hub is provided with a central bore adapted to fit upon the shaft 26 of the scraper and with a set screw 33 to hold the hub rigidly in position. The several sections of the scraper are arranged upon the shaft to bring the ends of the hub into contact and to bring the ends of the scraper

plates 32 into a spiral arrangement, as shown in Fig. 3, the side edges of the plates upon each section overlapping the edges of the plates upon the adjoining section.

5 For driving the conveyer and for rotating the cleaner, a sprocket 25 is provided upon each end of the main driving shaft 4, and a sprocket 36 is also rigidly secured upon each end of the conveyer shaft 10, at the rear of the machine, and a sprocket 37 is rigidly se-
10 curred to each end of the cleaner shaft 26. A sprocket chain 38 upon each side of the machine communicates motion from each sprocket wheel 35 of the drive shaft to the
15 corresponding sprocket wheels 36 and 37, of the conveyer and cleaner respectively, and a pair of idler sprockets 39 mounted upon an arm 40 pivoted between the idlers at 41, to the main frame, engaged upon opposite sides
20 of each sprocket chain 38 to keep the chain taut, the arm 40 being provided with a weight 42 which tends to turn the arm upon its axis to tighten the chain. As shown in Fig. 1 each sprocket chain extends over the
25 sprocket 35 under the sprockets 36 and 37, over the outer idler 39 and under the inner idler 39 and thence returning to the sprocket 35.

To raise and lower the bearings 11 carrying
30 the horizontal drive shaft 10 supporting the conveyer at the rear end of the machine, upwardly extending rods 45 one upon each side of the machine are pivotally secured at their lower ends to the ends of the drive shaft 10
35 and at their upper ends to crank pins 46 adjustably carried by wheels 47 rotatably supported upon the ends of a transverse shaft 48 mounted in bearings 49 upon the rear side of the main frame. Motion is communicated
40 to the crank wheel 47 by means of a gear wheel 50 upon the crank shaft 48, engaging a corresponding pinion 51 loosely mounted upon the main drive shaft 4 and into or out of connection therewith by means of a clutch
45 52 which is actuated by means of the shifter 53 pivoted to the bracket 54 rigid with the main frame and operated by cables 55.

To counterbalance the drive shaft 10 of the conveyer and the parts carried thereby a
50 weight 56 is provided upon each side of the machine carried by cables 56' running over the pulleys 57 and 58, each cable being secured to the corresponding bearing 11 of the said shaft 10. The cables 56' may also be
55 attached respectively to the lower ends of the arms 27 carrying the scraper, as shown in Fig. 1, and also in detail in Fig. 8 of the drawing to hold the rotary scraper yieldingly in position. The connections between the
60 cables 56' and the arms 27 are preferably made adjustable, each cable passing through an aperture 59 in the end of its arm and being held rigidly in any desired position by means of a cotter 60 which is threaded at its
65 smaller end and provided with a nut 61,

whereby the cotter may be drawn tightly into engagement against the cable. When the cables are thus connected to the arms 27, the downward movement of the rear portion of the conveyer will obviously cause an up- 70
ward movement of the cleaner, and the upward movement of the rear portion of the conveyer will cause the cleaner to be moved downward by means of the downward move- 75
ment of the weight. If preferred, however, the connections between the cables and the arms may be omitted in which case the weight of the scraper will be depended upon to hold the scraper yieldingly in position.

A scalding vat 65 is arranged upon the 80
front side of the machine upon separate standards 66 mounted upon beams 67. If preferred, however, the vat might be rigidly secured to the main frame of the machine.

To lift an animal from the scalding vat and 85
put it upon the upper surface of the conveyer, there is provided a lifter 68 which is pivoted upon a shaft 69 to the upper inner edge of the vat. The free end of the lifter 68 is curved upwardly as at 70, to keep the ani- 90
mal from sliding off of the lifter when the lifter is being swung upwardly. Connecting rods 71 are pivotally secured at their upper
ends to side extensions 73 of the lifter and at their upper ends to crank pins 74 adjustably 95
carried by crank wheels 75, upon the ends of a crank shaft 76, which is journaled in bearings mounted upon the oppositely disposed transverse beams 3 of the main frame and is
100 driven by means of a gear 77 rigid with the shaft engaging the hereinbefore mentioned pinion 51 which is controlled by the clutch 52 of the main driving shaft. The scalding vat 65 is provided upon its inner side with an inclined platform 78 which is substantially 105
in the plane of the inclined front upper portion 79 of the conveyer, and the lifter when in its uppermost position is substantially in alinement with the said platform 78, and the said front upper portion of the said con- 110
veyer.

The operation of the machine is as follows:—When it is desired to start the machine power is applied to the main driving pulley 5 to rotate the main drive shaft 4. It 115
is evident that this rotation of the main driving shaft 4, which is in the direction indicated by the arrows, will cause a rotation of the conveyer and of the rotary cleaner in directions indicated by corresponding arrows. 120
When the parts of the machine are in the position shown in Fig. 1 of the drawing the clutch 52 is thrown into operation and the crank wheels 47 and 75 are thereby caused to rotate to move simultaneously the rods 45 and 125
71 to depress the rear portion of the conveyer and to depress the lifter 68 until these parts are brought into their lowermost positions, as shown in Fig. 4, the free end of the lifter being then adjacent and substantially in alinement 130

with the bottom of the scalding vat. At this point in the operation of the machine the clutch 52 is thrown out of operation until an animal has been rolled upon the lifter, from the bottom of the scalding vat when the clutch is again thrown into action whereupon the rear portion of the conveyer and the lifter are simultaneously elevated; and when the lifter is in its uppermost position the clutch is disconnected and the animal slides downwardly over the inclined platform 78 and upon the upper inclined surface of the conveyer. The movement of the conveyer continues during the rotation of the main drive shaft 4 without interruption, and the animal is brought downwardly into the depression in the surface of the conveyer and into position to be acted upon by the scraping plates or blades of the rotary cleaner which move in a direction opposite to that of the adjoining surface of the conveyer, this difference in direction causing the animal to be rotated so that all parts of the animal are subjected to the action of the scraper blades. When, after having been subjected to the action of the scrapers for a few seconds, the animal has been thoroughly cleaned, the clutch 52 is thrown into connection causing the rear portion of the conveyer to be lowered and the scraper to be elevated, thus permitting the animal to be carried by the conveyer past the scraper and to be delivered over the rear edge of the conveyer into a wagon or other receptacle which may be placed adjacent and below the conveyer to receive it. Upon the delivery of one animal from the conveyer the machine is in position to lift a second animal from the scalding vat and to repeat the cleaning operation. Although I have shown only one form in which this invention may be embodied, it is obvious that many changes might be made in the details of the construction shown herein, within the scope of the appended claims, without departing from the spirit of this invention or sacrificing any of the advantages thereof.

Having thus fully described my invention what I claim and desire to protect by Letters Patent of the United States is:

1. In a hog cleaning machine, the combination with driving mechanism, of a conveyer, and cooperating means actuated by said driving mechanism for elevating a hog and placing it upon the conveyer, for raising the conveyer into operative position.

2. In a hog cleaning machine, the combination with driving mechanism, of a conveyer and means actuated by said mechanism to elevate a hog and place it upon the conveyer, and means actuated by said driving mechanism to raise and lower said conveyer.

3. In a hog cleaning machine, the combination with a conveyer and driving mechanism

therefor, of a hog lifter, a pair of crank pins rotated by said driving mechanism and connecting rods between said crank pins and said conveyer and said lifter respectively to raise and lower said conveyer and said lifter respectively.

4. In a hog cleaning machine, the combination with driving mechanism, of a conveyer, a hog lifter mounted to rotate about a fixed axis, means actuated by said mechanism to rotate said lifter and to bring it into the plane of the conveyer, and means actuated by said driving mechanism to raise a portion of said conveyer.

5. In a hog cleaning machine, the combination with driving mechanism, of a conveyer having a portion of its upper surface arranged in an inclined plane, a hog lifter mounted to rotate upon an axis substantially in alignment with said plane, means actuated by said mechanism to rotate said lifter to bring the plane of the lifter substantially in alignment with the plane of the conveyer, and means actuated by said driving mechanism to raise and lower a portion of the conveyer.

6. In a hog cleaning machine, the combination with a conveyer, of driving mechanism therefor, a hog lifter and cooperating means actuated by said driving mechanism for simultaneously raising said lifter and changing the path of the conveyer.

7. In a hog cleaning machine, the combination with a conveyer, of a scalding vat, driving mechanism, and means actuated by said driving mechanism to lift a hog from said vat and place it upon said conveyer, and to raise the conveyer into operative position.

8. In a hog cleaning machine, the combination with an endless conveyer, of a rotary cleaner mounted upon a yielding axis, driving mechanism for rotating said conveyer and cleaner, and means actuated by said driving mechanism to vary the distance between said conveyer and cleaner.

9. In a hog cleaning machine, the combination with an endless conveyer, of means to form a depression in the surface thereof, a rotary cleaner upon the concave side of and adjacent to the said depression when formed, and means to move the cleaner toward and away from the conveyer.

10. In a hog cleaning machine, the combination with an endless conveyer, of means to form a depression in the surface thereof, a rotary cleaner adjacent said means, driving mechanism for said conveyer and said cleaner, and means actuated by said driving mechanism to vary the distance between said conveyer and said cleaner.

11. In a hog cleaning machine, the combination with an endless conveyer, and driving mechanism therefor, of means actuated by said driving mechanism for changing the path of the conveyer.

12. In a hog cleaning machine, the combination with a conveyer, of a rotary cleaner, driving mechanism, and means actuated by said driving mechanism for changing the path of a portion of the said conveyer.

13. In a hog cleaning machine, the combination with a conveyer, of a rotary cleaner, driving mechanism, and means actuated by the driving mechanism for raising a portion of said conveyer and for simultaneously lowering said cleaner.

14. In a hog cleaning machine, the combination with an endless conveyer, of a rotary cleaner, driving mechanism, and means actuated by said driving mechanism for moving the path of a portion of the conveyer toward and away from said cleaner.

15. In a hog cleaning machine, the combination with a rotary cleaner, of an endless conveyer, said conveyer comprising a rotary vertically adjustable driving element and a rotary support upon a fixed axis, driving mechanism for the conveyer and means actuated by said driving mechanism to adjust said driving element.

16. In a hog cleaning machine, the combination of an endless conveyer comprising a rotary vertically adjustable driving element, and a rotary support upon a fixed axis, a rotary idler between said driving element and said rotary support to form a depression in the upper surface of the conveyer, and a cleaner above said conveyer and between said driving element and said rotary support.

17. In a hog cleaning machine, the combination with a main frame, of a main driving shaft carried thereby, an endless conveyer, spaced rotary supports for said conveyer, means for forming a depression in the conveyer between said rotary supports, a rotary cleaner engaging in said depression when in operative position, means between one of the said rotary supports and said driving shaft for driving said conveyer and said cleaner, and means actuated by the driving mechanism for moving the cleaner toward and away from the conveyer.

18. In a hog cleaning machine, the combination with a main frame, of a main driving shaft carried thereby, an endless conveyer, spaced rotary supports for said conveyer, a rotary idler for depressing the conveyer between said rotary supports, means between one of said supports and said drive shaft for driving said conveyer, and means actuated by said driving shaft for the vertical adjustment of one of said rotary supports to change the path of the conveyer between said support and said idler.

19. In a hog cleaning machine, the combination with a main frame, of a main driving shaft, a pinion loosely mounted upon said shaft, a clutch between said shaft and said pinion, two crank shafts driven by said

pinion, an endless conveyer carried by said main frame, a scalding vat, means actuated by said main driving shaft to rotate said conveyer, means actuated by one of said shafts to change the path of said conveyer, and means actuated by the other of said shafts to lift a hog from said vat and deposit it upon said conveyer.

20. In a hog cleaning machine, the combination with a main driving shaft, of a rotary cleaner, an endless conveyer four spaced rotary horizontal supports for said conveyer, two of said rotary supports being upon vertically adjustable axes, means actuated by said main driving shaft to raise and lower one of said rotary supports, and a counter-weight for said rotary support.

21. In a hog cleaning machine, the combination with a main driving shaft, of a rotary cleaner, an endless conveyer, four spaced rotary supports for said conveyer, two of said rotary supports being upon vertically adjustable axes, means actuated by said main driving shaft to raise and lower one of said rotary supports, and a counter-weight connected to said rotary support, said rotary cleaner being movable toward and away from said conveyer, and said counter-weight being adjustably connected to said cleaner, whereby the cleaner is yieldingly held downwardly and whereby when the conveyer is lowered said cleaner will be elevated.

22. In a hog cleaning machine, the combination with a main drive shaft, of a rotary cleaner driven thereby, an endless conveyer, a rotary support for said conveyer mounted upon a vertically adjustable axis, a sprocket upon said main drive shaft, a sprocket upon said rotary support, a sprocket chain between said sprockets, and a weighted idler engaging said sprocket chain to keep the chain under tension.

23. In a hog cleaning machine, the combination with a cleaner, of an endless conveyer comprising spaced chains extending longitudinally thereof and transverse bars between said chains, of spaced rotary horizontal shafts, sprockets upon said shafts carrying said chains, idlers arranged above the upper surface of said conveyer to depress said conveyer, said idlers being provided with spaced recesses around their peripheries adapted to receive the spaced transverse bars of the conveyer as the conveyer is rotated, and a rotary cleaner adjacent said idlers and adapted to engage when in operative position in the depression formed in the conveyer by said idler.

24. In a hog cleaning machine, the combination with a driving shaft, of a pinion loosely mounted upon said shaft, a clutch between said shaft and said pinion, two crank shafts driven by said pinion, an endless conveyer, a scalding vat, and means actuated by one of said crank shafts to change the path of said

conveyer and means actuated by the other of said crank shafts to lift a hog from said vat and deposit it upon said conveyer.

25. In a hog cleaning machine, the combination with a driving shaft of two crank shafts driven thereby, a clutch between said drive shaft and said crank shafts, a conveyer and a lifter and means actuated by one of said crank shafts to change the path of said conveyer, and means actuated by the other of said crank shafts to actuate said lifter.

26. In a hog cleaning machine, the combination with a driving shaft, of an endless conveyer rotated thereby, and means actuated by said shaft for changing the path of said conveyer.

27. In a hog cleaning machine, the combination with a driving shaft, of an endless conveyer rotated thereby, a lifter, and means actuated by said driving shaft for simultaneously changing the path of said conveyer and actuating said lifter.

28. In a hog cleaning machine, the combination with a conveyer, of means to form a depression in the surface thereof, a cleaner engaging in said depression when in operative position, and means to move the cleaner toward and away from the conveyer.

29. In a hog cleaning machine, the combination with a conveyer, of means to form a depression in the surface thereof, a cleaner engaging in said depression when in operative position, driving mechanism, and means actuated by said driving mechanism for changing

ing the relative positions of said conveyer and cleaner. 35

30. In a hog cleaning machine, the combination with a conveyer, of means to form a depression in the surface thereof, a cleaner engaging in said depression when in operative position, driving mechanism, means actuated by said driving mechanism for changing the relative positions of said conveyer and cleaner, and for changing the path of a portion of said conveyer. 40 45

31. In a hog cleaning machine, the combination with a conveyer, of a cleaner, driving mechanism, and means actuated by said driving mechanism for changing the relative positions of the cleaner and conveyer. 50

32. In a hog cleaning machine, the combination with a conveyer, of a cleaner, driving mechanism, and means actuated by said driving mechanism for changing the relative positions of the cleaner and conveyer, and for changing the path of a portion of the conveyer. 55

33. In a hog cleaning machine, the combination with a conveyer, of driving mechanism, and means actuated by said driving mechanism for changing the path of a portion of the conveyer. 60

In witness whereof I have hereunto set my hand this 14th day of May, A. D. 1908.

GOTTLIEB ROTH.

Witnesses:

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