

979,103.

E. A. SMITH.
FISH DRESSING MACHINE.
APPLICATION FILED SEPT. 20, 1906.

Patented Dec. 20, 1910.

5 SHEETS—SHEET 1.

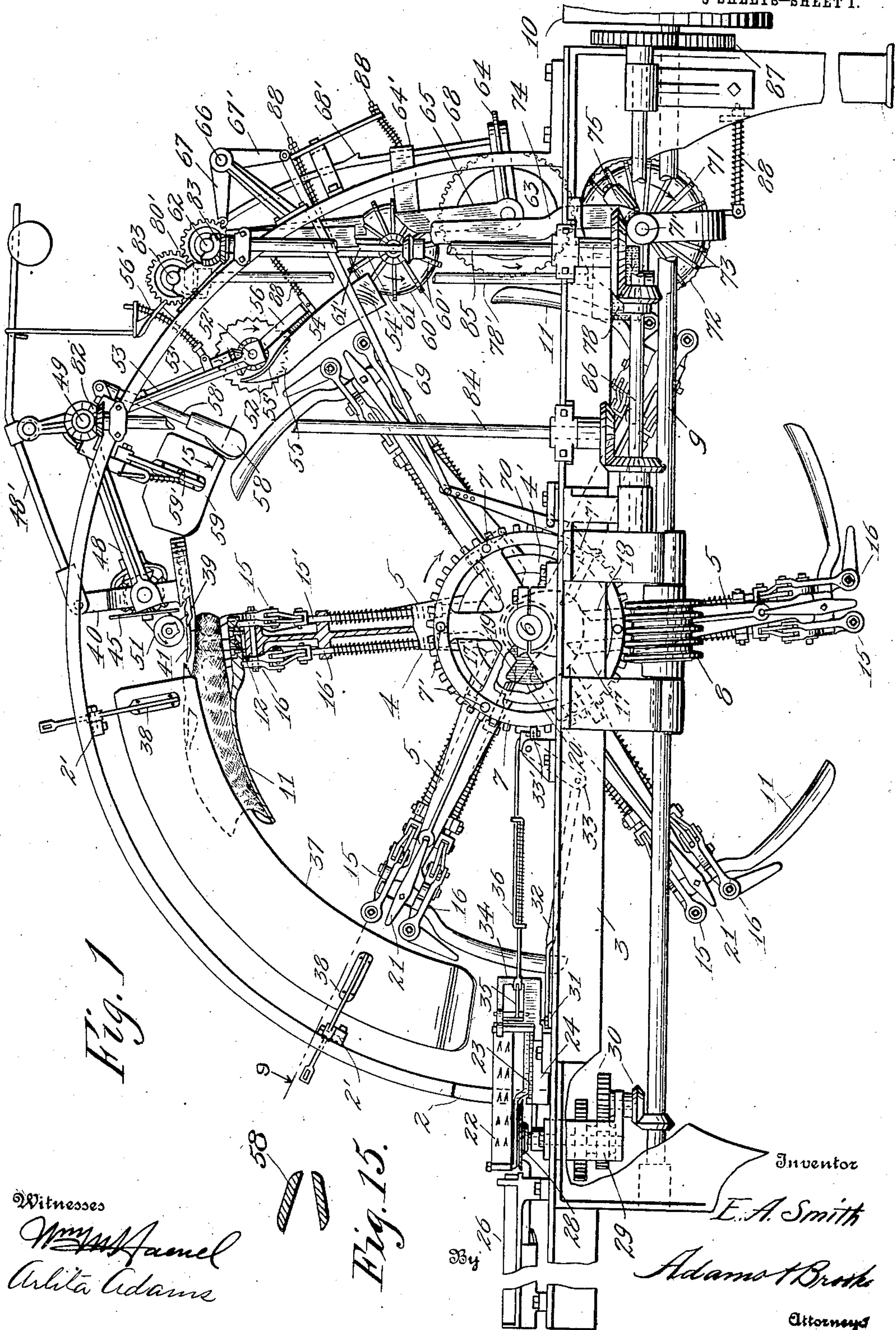


Fig. 1

Fig. 15.

Witnesses

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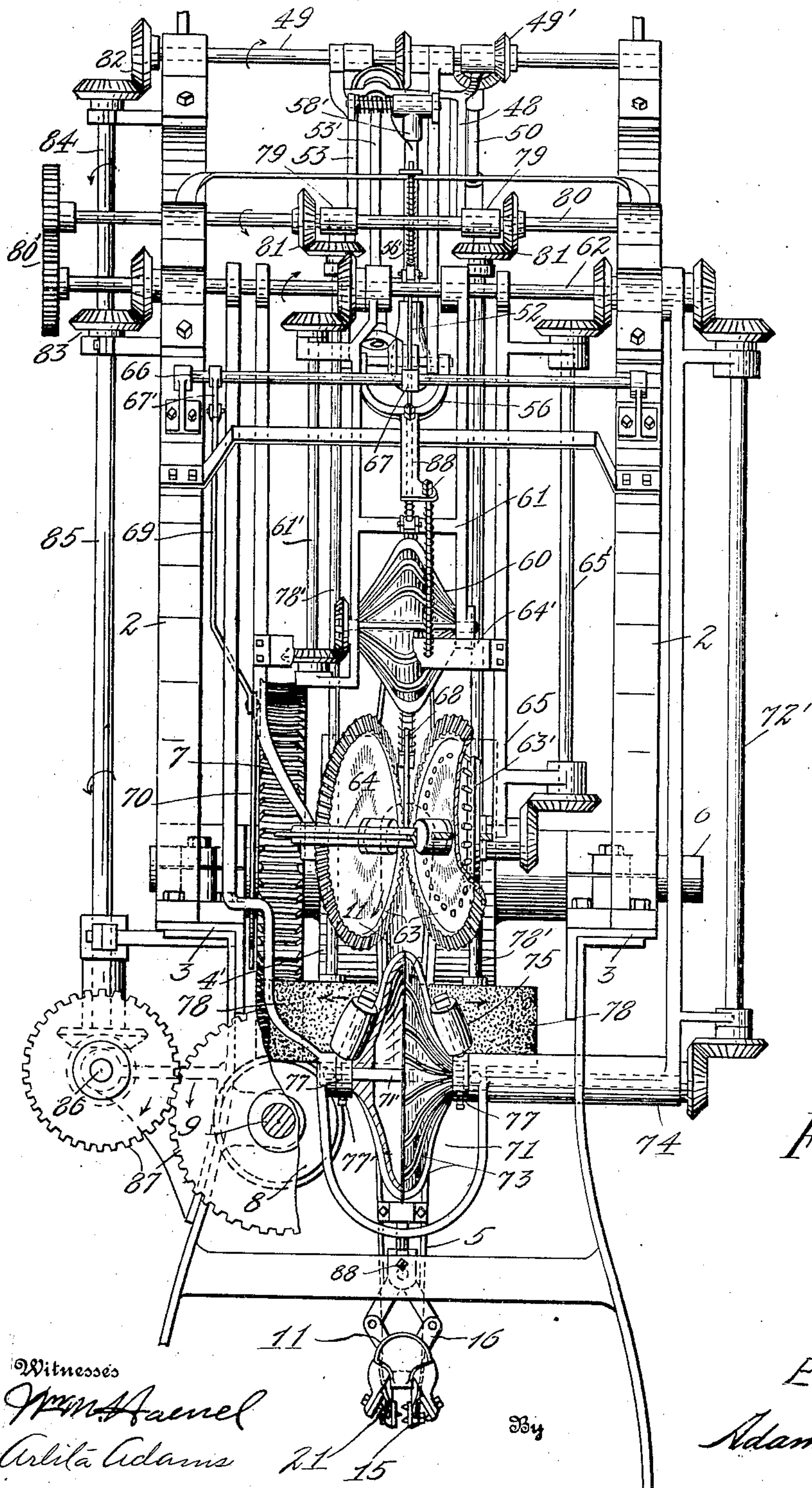


Fig. 2

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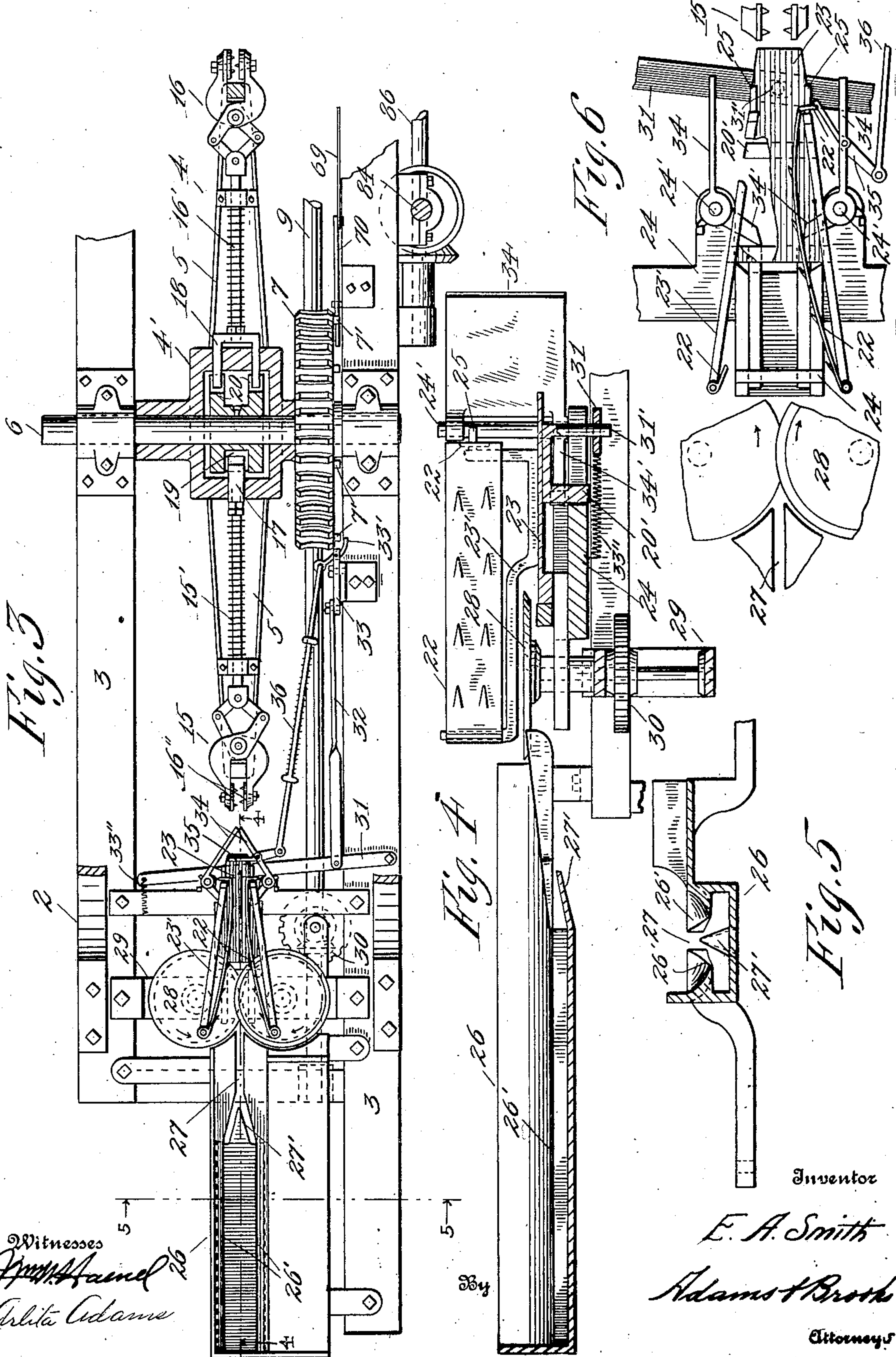
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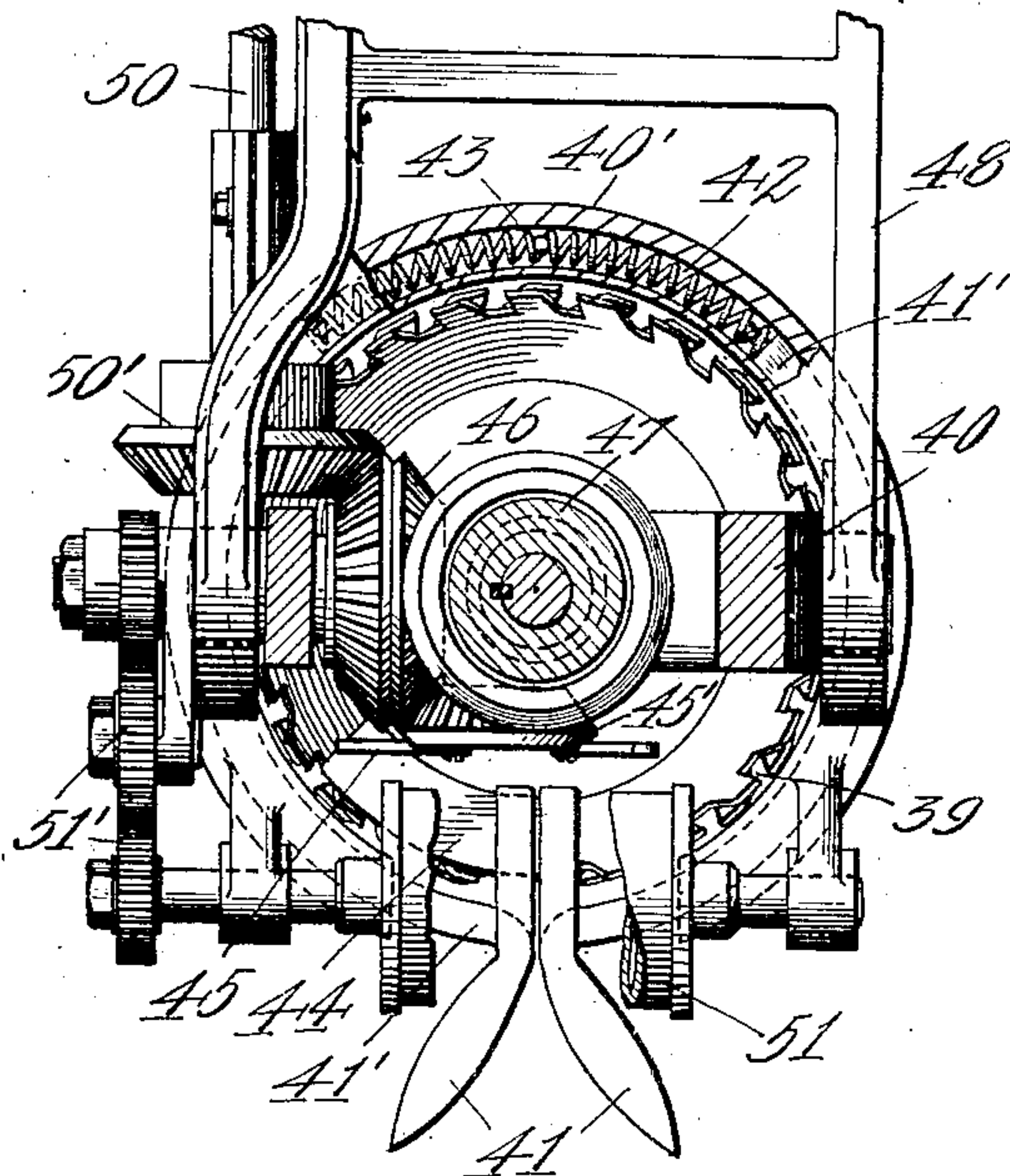


Fig. 7

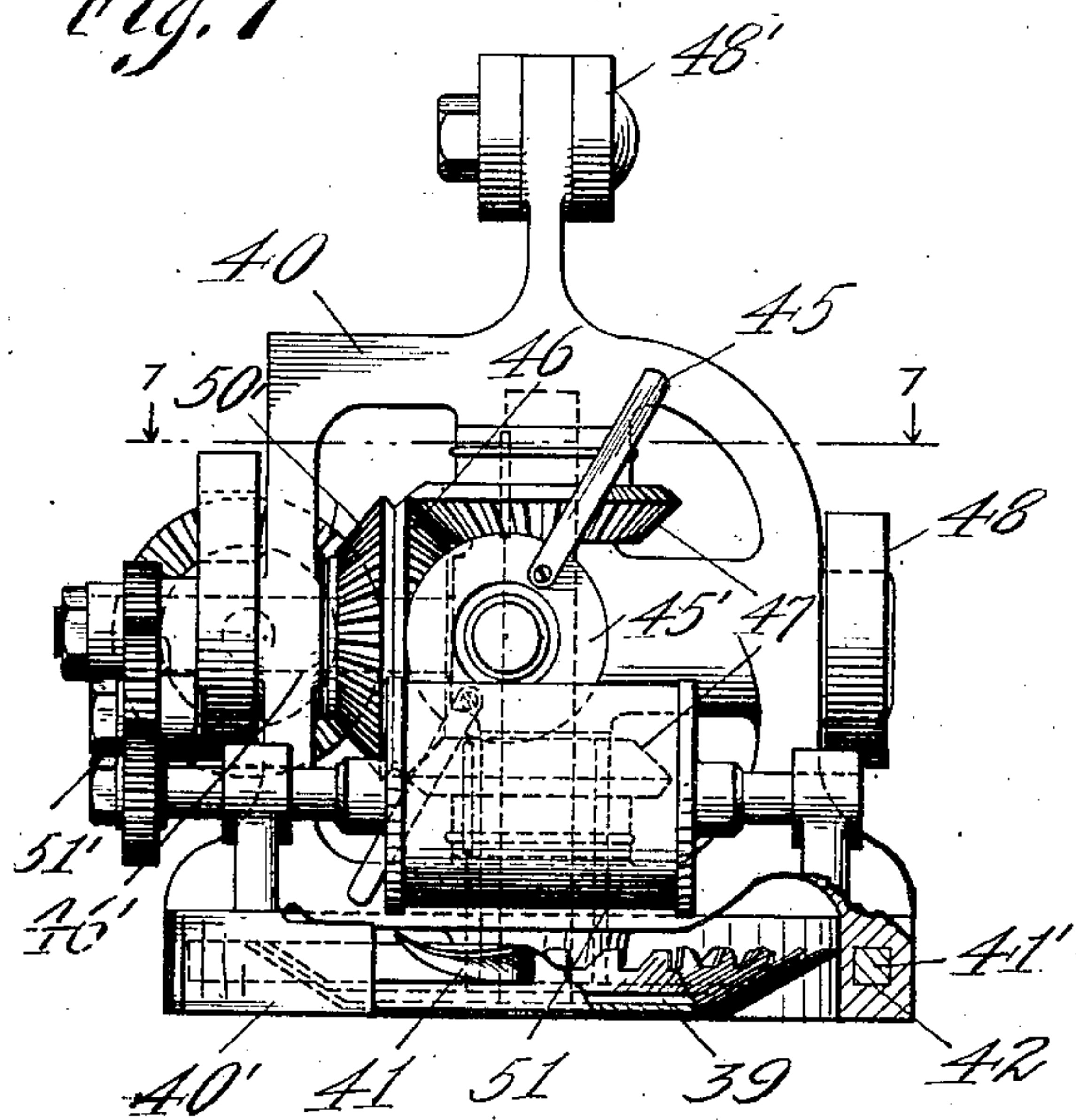


Fig. 6a

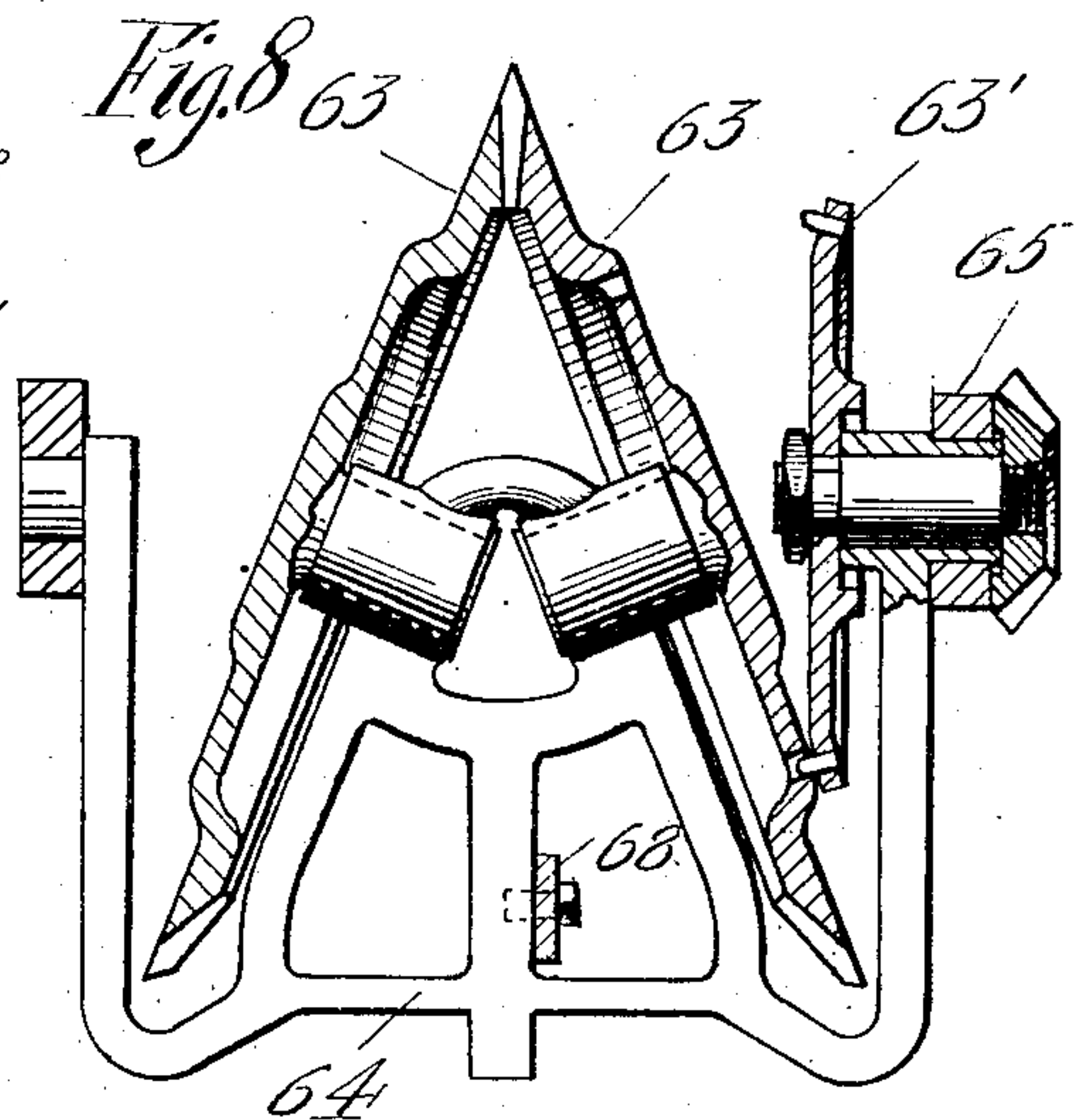


Fig. 8

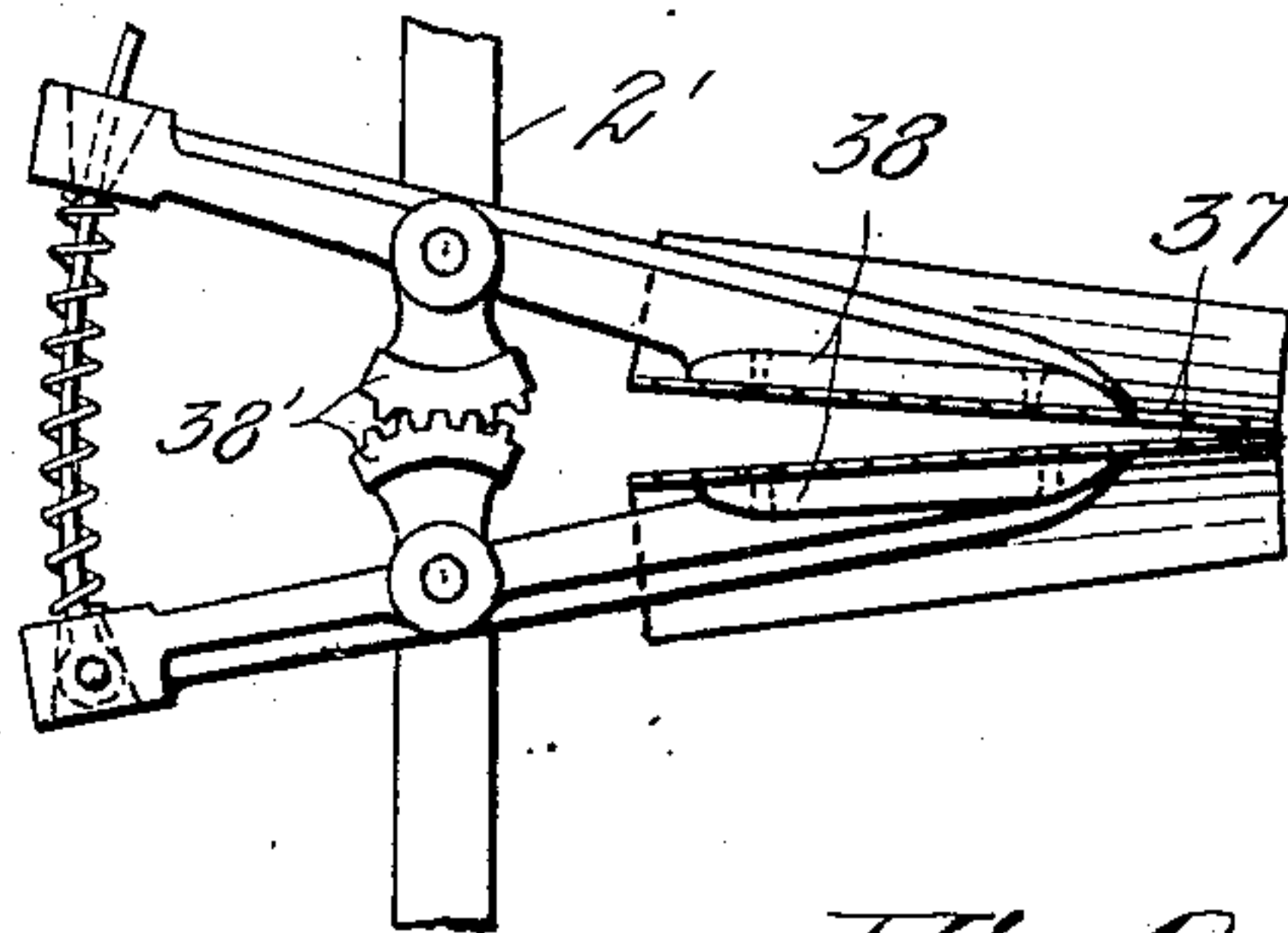


Fig. 9

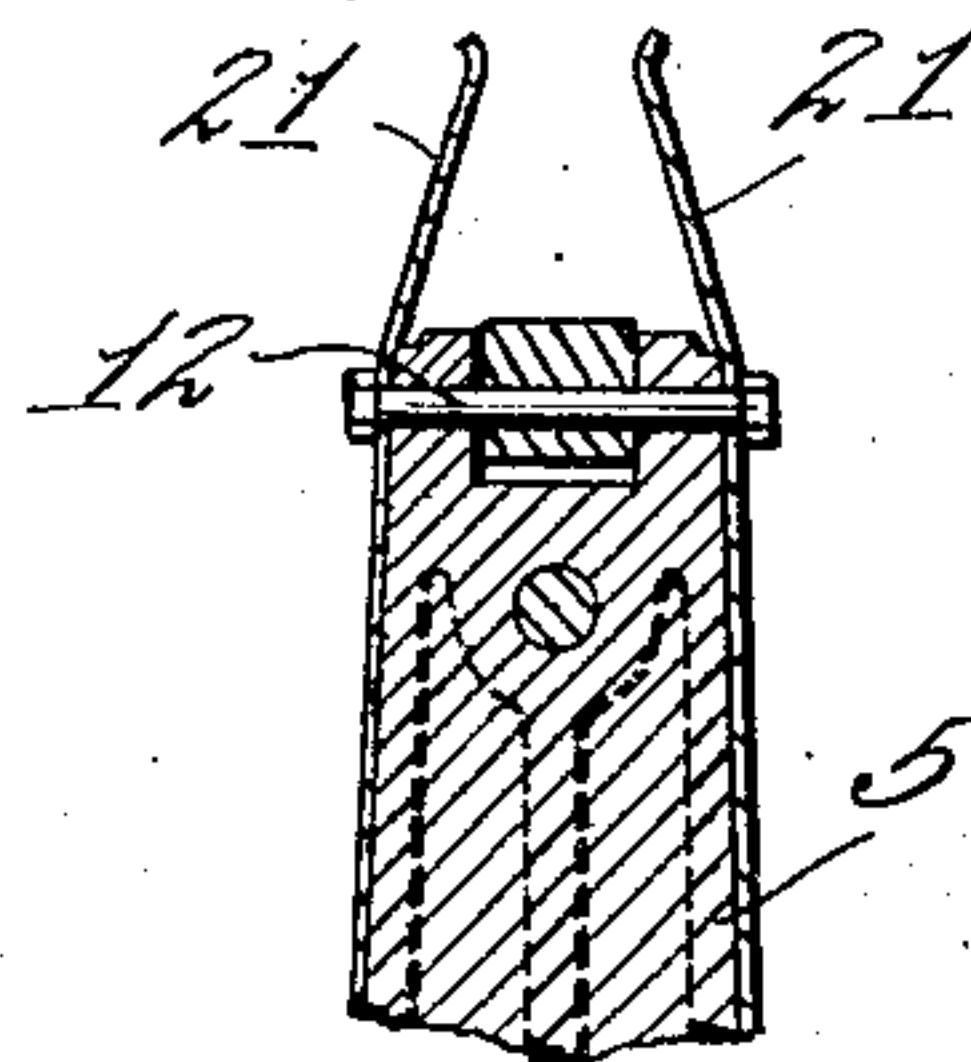


Fig. 10

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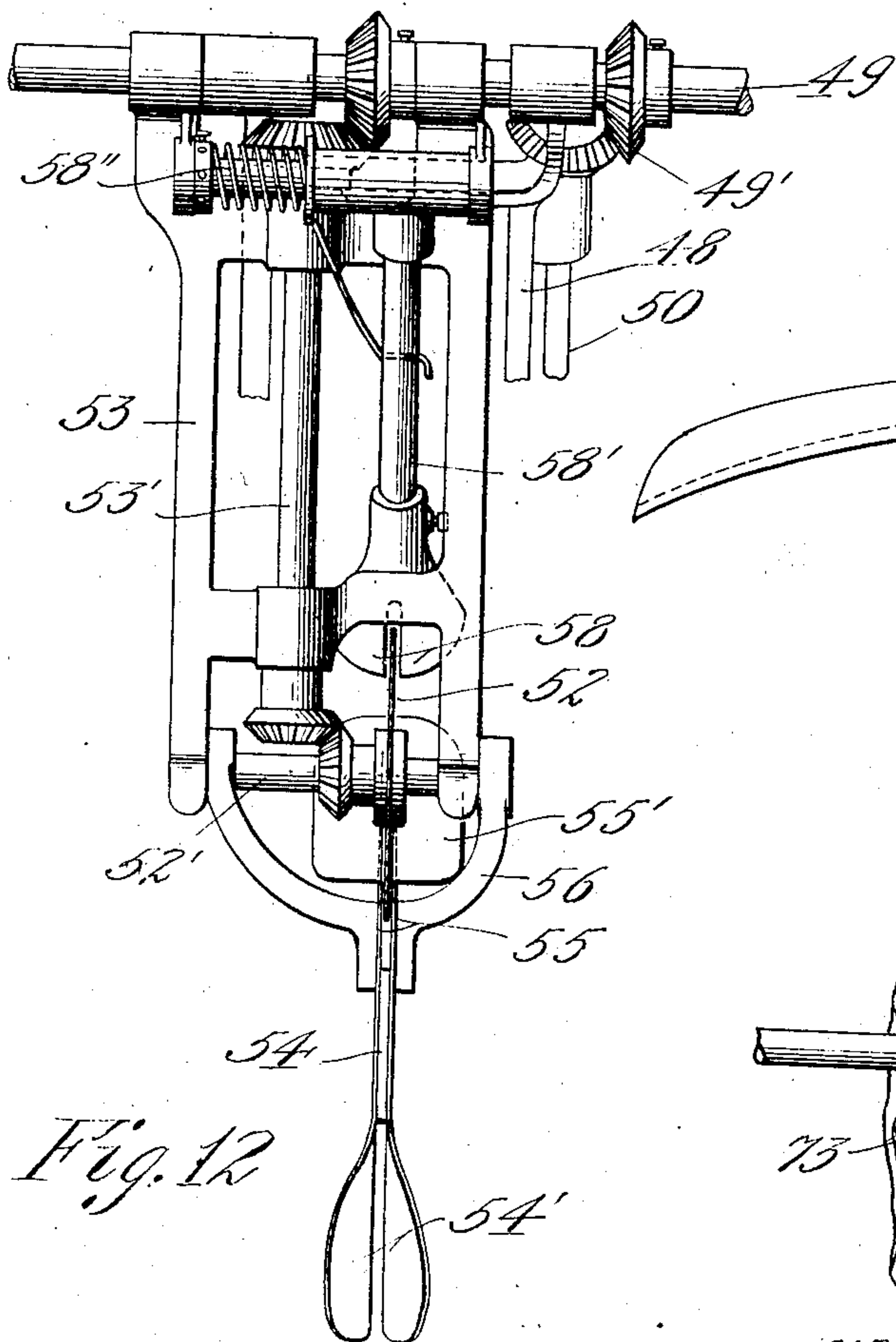


Fig. 11

Fig. 12

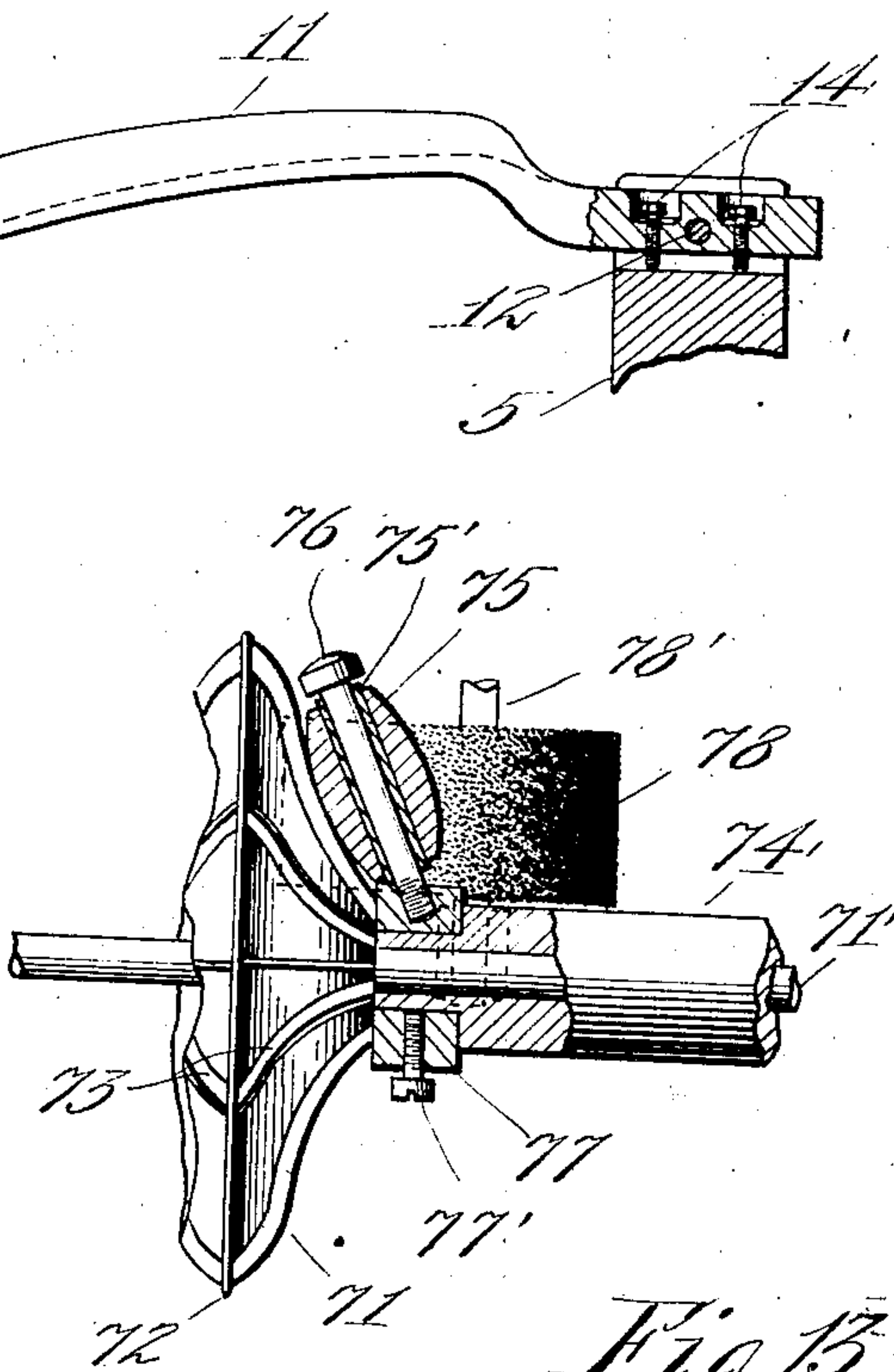


Fig. 13

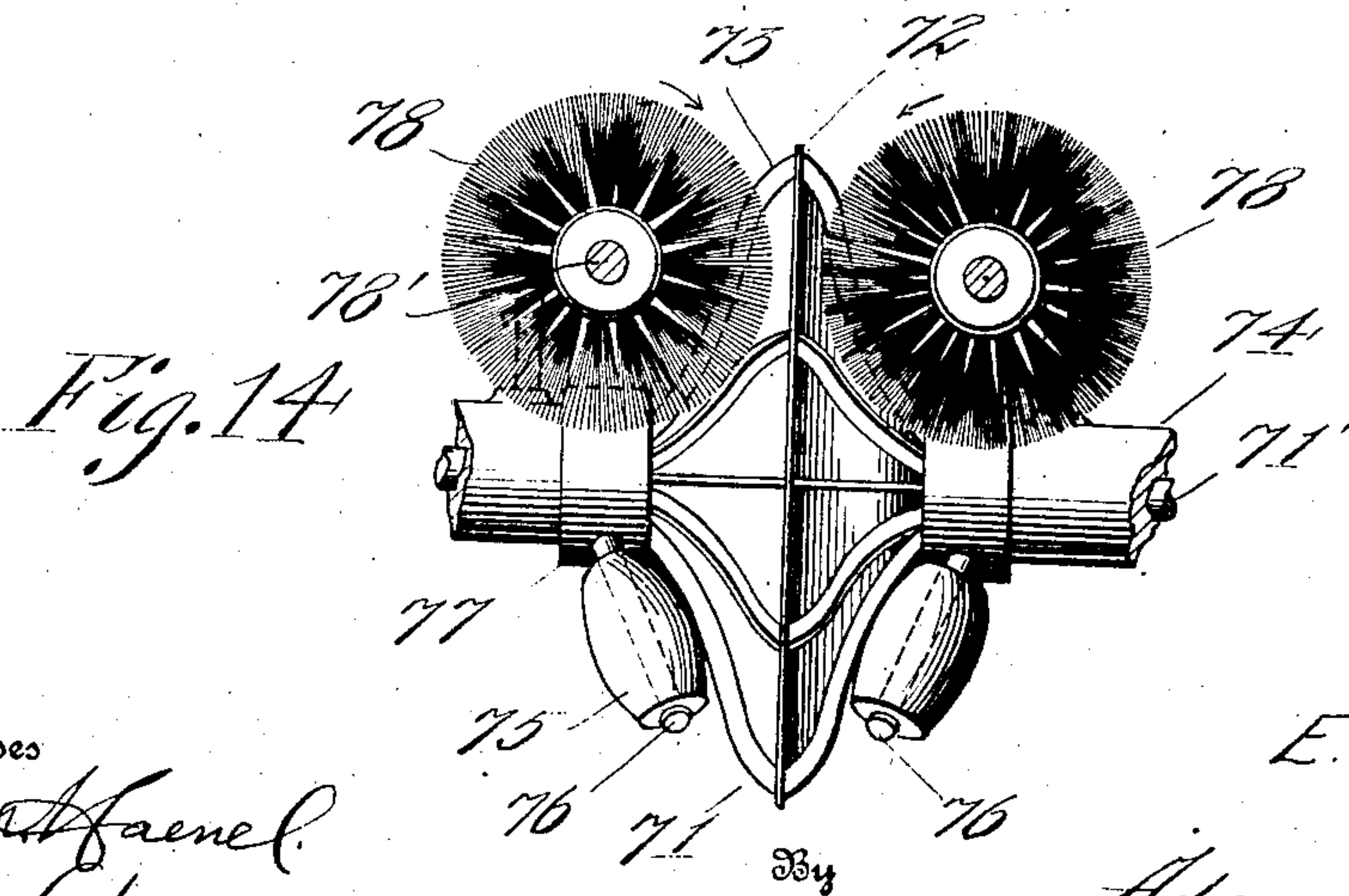


Fig. 14

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UNITED STATES PATENT OFFICE.

EDMUND AUGUSTINE SMITH, OF SEATTLE, WASHINGTON, ASSIGNOR TO SMITH CANNERY MACHINES COMPANY, OF SEATTLE, WASHINGTON, A CORPORATION OF WASHINGTON.

FISH-DRESSING MACHINE.

979,103.

Specification of Letters Patent. Patented Dec. 20, 1910.

Application filed September 20, 1906. Serial No. 335,517.

To all whom it may concern:

Be it known that I, EDMUND AUGUSTINE SMITH, a citizen of the Dominion of Canada, and a resident of the city of Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Fish-Dressing Machines, of which the following is a specification.

The primary object of my invention is to provide an improved apparatus of the above type which will be very efficient in operation.

Other objects will be set forth as the description progresses.

With reference to the accompanying drawing wherein like reference numerals designate corresponding parts throughout: Figure 1 is a view in side elevation of a machine embodying my improvements with portions of some of the parts broken away. Fig. 2 is a rear end elevation of the same with portions of some of the parts broken away. Fig. 3 is a fragmentary plan view in partial section with the overhead parts removed. Fig. 4 is a fragmentary sectional view taken on line 4—4 of Fig. 3. Fig. 5 is a transverse section of the feed way taken on line 5—5 of Fig. 3. Fig. 6 is a fragmentary plan view showing the feeding device in advanced position. Fig. 6^a is a front elevation of the fin severing device removed and shows the cutter head in partial section. Fig. 7 is a sectional plan view of same taken on line 7—7 of Fig. 6^a with a portion of the cutter head broken away. Fig. 8 is a sectional plan view of the entrail removing and body scraping device. Fig. 9 is a fragmentary sectional view taken on line 9 of Fig. 1. Fig. 10 is a fragmentary sectional view of one arm of the carrier. Fig. 11 is a detail view showing one of the body seats. Fig. 12 is a fragmentary rear view showing the presser, splitter and spreader. Fig. 13 is a fragmentary sectional view of the entrail removing (and body scouring) device. Fig. 14 is a fragmentary plan view of the same, and Fig. 15 is a section taken on line 15 of Fig. 1.

The main frame of the machine is formed with arched side members 2 supported on base pieces 3 which are mounted on suitable legs.

Reference numeral 4 designates a carrier comprising arms 5 radiating from a hollow

hub 4' which is rotatably mounted on a stationary shaft 6 supported on the base pieces 3 concentric with the side members 2. Secured to the hub 4' is a worm wheel 7 which meshes with a worm 8 secured to a shaft 9 journaled on the main frame. Secured to this shaft is a pulley 10 to which power is applied to rotate the carrier in the direction indicated by the arrow in Fig. 1.

At the outer ends of the arms 5 I provide rearwardly-projecting seats 11 which are preferably formed concave in cross-section to receive the back part of a fish body, and convex along their bottom portions. Each seat is provided at the forward end with a suitable stem which is swingably connected, as at 12, with a respective arm 5, so that the seat may be adjusted inwardly or outwardly. At opposite sides of the point of swing of the seat are adjusting screws 14, (see Fig. 11,) which have screw-threaded connections with the stem thereof and impinge the underlying surface of the arm.

Adjacent the forward end of each seat 11 are gripping devices 15 and 16 each consisting of a pair of cross members pivotally supported on the respective arm 5 with their gripping portions at respective sides of the path of the carrier. These gripping devices are provided with suitable barbs to insure a positive hold on the fish, and in the case of the devices 15, which it will be observed, are in advance of their companion gripper 16, these barbs are provided on jaws 16' which are rotatably mounted on respective gripping members; so as to avoid mutilation of the fish body as it swings to and from its seat on the carrier.

Slidably mounted on each arm 5 are spring pressed rods 15' and 16' which have link connections with the cross members of the gripping devices 15 and 16 respectively and are provided at their inner ends with wipers 17 and 18 respectively which project into the hub 4'. Secured to the shaft 6 and terminating at its forward side are cams 19 and 20 which extend downwardly in a rearward direction for engagement with the wipers 17 and 18 respectively, to open the gripping devices.

Intermediate each pair of gripping devices are opposite resilient guards in the form of fingers 21, (see Fig. 10), which are conveniently secured to the arms 5 so as to engage the fish body and thereby insure the with-

drawal therefrom of the barbs on said devices when they are opened.

Adjacent the upwardly moving side of the carrier 4 is a feed device including opposite jaws as 22 consisting, preferably, of sections of resilient sheet metal bent to a suitable curvature and mounted on a head as 23 which is slidably supported for movement toward and from the path of said carrier on a cross-member 24 of the main frame. The head 23 is provided with opposite rearwardly diverging arms 23' which have upturned rear and forward end portions, to the former of which the respective jaws 22 are secured at one end while the latter have angular extensions 25 slidably engaged with suitable eyes, as 22' on said jaws.

Mounted at the forward end of the machine on the base pieces 3 is a feed-way 26 formed with opposite guides 26' which are spaced well apart along their outer portions and converge adjacent their forward ends to provide a comparatively narrow passage way, as 27. The said outer portions of the guides are formed with their inner edges comparatively thin (see Fig. 5,) and have their upper surfaces concaved to receive the back part of the fish body, which is placed upon the guides belly up with the tail portion foremost and then pressed forwardly to engage it between the jaws 22. Should the back fin of the fish be bent laterally in either direction it will be engaged and straightened out by one or the other of the guides 26' during its forward movement.

Located beneath the space between the converging portions of the guides 26' is a guard 27' in the form of a tongue which is inclined upwardly in a forward direction with the tip adjacent the entrance to the passage-way 27 so as to keep the fish body from being caught between said converging portions of the guides.

At the inner end of the feedway 26 is a cutting device conveniently consisting of horizontally disposed blades 28 which overlap each other adjacent the passage way 27 so as to sever the back fin of the fish as it passes therefrom. These blades are mounted on suitable spindles rotatably supported on a cross-member 29 of the main frame and operatively connected with shaft 9 by means of suitable gearing as 30.

Mounted on the main frame is a spring retracted swing arm 31 which is engaged with a depending pivot 31' of the head 23 and connected, by means of a rod 32, with the lower end of a lever 33 mounted on said frame adjacent the upwardly moving side of the wheel 7. This wheel is provided with projections as 7', one for each arm 5, which are related to a wiper 33' pivotally mounted on the upper end portion of lever 33 and normally lying out of the path of said projections.

Related to the head 23 is a feed regulating device comprising gates 34 which are swingably engaged with respective pivots 24' mounted on the cross member 24 at opposite sides of said head. These gates normally occupy angular positions forwardly of the head 23 in the path of the fish body and are provided with rearwardly converging arms 34' which, when the gates are closed, engage at their inner ends with a lug 20' of said head to keep the gates from swinging outwardly.

Mounted on one of the gates 34 is a set lever 35 which normally occupies a position wherein it extends into the path of the fish body to be operated by the same as it is pressed forwardly between the jaws 22. This lever is connected with the wiper 33' to operate the same by means of a yielding take-up as 36 which, when the lever is moved by the fish body, swings said wiper into position to be engaged by the first advancing projection 7' of the wheel 7. The said projection acts on the wiper 33' to swing lever 33 and thereby advance the head 23 as the respective gripping device 15 approaches the point of feed. As the head moves forwardly the lug 31' thereon clears the arm 34', thereby releasing the gates so that they can be opened by the fish body as it is moved to its advanced position where its forward end portion is gripped by the approaching gripping device 15 whose wiper 17 at this point passes from engagement with cam 19. During upward movement of the said gripping device the fish body is engaged at opposite sides by guide members 37 and swings between guards 21 to its seat on the carrier, where it is then gripped by the companion gripping device 16. As the fish body is elevated from the jaws 22 the respective projection 7' rides clear of the wiper 33' and the spring 33'' of arm 31 acts to retract the head 23, during which movement the lug 20' engages the arms 34' to close the gate, when a second fish body may be inserted between the jaws 22 to set the wiper 33' for engagement with the succeeding projection 7'.

The guide members 37 consist of segmental plates bent outwardly at their lower ends and supported on respective spring pressed swing arms 38 which are pivotally mounted on cross pieces 2' secured to the side members 2. These arms are arranged in pairs (see Fig. 9), and provided with gear sectors 38' which connect the arms of respective pairs to obtain equal adjustment of each member 37 as the fish body enters therebetween and thereby insure proper position of the body on its seat.

Reference numeral 39 designates a cutter comprising a pair of circular blades secured to suitable spindles and formed with outwardly flaring cutting rims rotatively

fitting one within the other in substantially the same manner as disclosed in my former Patent No. 796,538. This cutter is mounted on a head 40 having an annular like base 40' which is open at the forward side and embraces the rim portion of the cutter.

Extending from the open side of base 40' are forwardly diverging fin guides 41 having segmental stems 41' slidably fitting in opposite end portions of a channel 42 in said base and engaging at their inner ends with a spring 43 serving to yieldingly hold said guides in normal positions. These guides are provided with base extensions, (see Fig. 7,) which project rearwardly over the cutting edge of cutter 39, and secured to one of said extensions is a plate 44 which projects across the opposite extension and serves to support the fins severed by said cutter.

Operating above the plate 44 is a means for removing the severed fins from about the cutter 39, the same comprising oppositely disposed arms 45 secured to a bevel gear 45' rotatably mounted on the head 40 and meshing with a similar gear 46 which is secured to a shaft 46' journaled on said head and engages oppositely disposed gears 47 secured to respective spindles of the said cutter.

The head 40 is mounted adjacent the rear ends of the guides 37 on a frame 48 with the lower edge or heel of cutter 39 in the path of the fish body at the forward side of said head and the cutting edge of the cutter slightly above and in advance of the heel. The frame 48 is swingably supported rearwardly of the cutter head on a shaft 49 journaled on the side members 2. Secured to this shaft is a bevel gear 49' meshing with a similar gear rotatable with a shaft 50 which is mounted on frame 48 and connected with the shaft 46' to drive the cutter by means of a pair of bevel gears 50'. The head 40 is pivotally connected with frame 48 concentric with the shaft 46' and suitably counterbalanced by means of a weighted lever 48' so as to exert a slight downward pressure as the fish body passes beneath the same.

To keep the cutter 39 from gouging the fish body during the fin severing operation I provide a guard 51 which projects forwardly of said cutter to engage the fish body and is suitably spaced upwardly from the cutting edge of the latter to permit the fins to pass beneath the guard in engagement with the guides 41. This guard as shown, is in the form of a drum which is rotatably supported on the cutter head 40 and connected with shaft 46' by means of a train of gears 51' (see Figs. 6 and 7).

Reference numeral 52 designates a cutter secured to an arbor 52' rotatably mounted on a frame 53 which is swingably supported

on shaft 49 with said cutter in line with the center of the path of the carrier to split the fish body. This cutter is driven from shaft 49 by suitable gearing including a shaft 53' mounted on the frame 53.

Extending rearwardly from the splitter 52 is a spreader comprising a plate 54 provided with outwardly diverging extensions 54' at its rear end and extensions 55 at the forward end which lie at opposite sides of the splitter and are each provided with a laterally projecting shoe 55' adapted to ride upon the fish body to regulate the depth of cut of the splitter. This spreader is secured to forwardly diverging arms 56 which are swingably engaged with the arbor 52' so that the spreader will be adjusted outwardly at its forward end with the splitter as the fish body passes into engagement with the shoes 55'. To keep the frame 53 from bounding outwardly when the fish body strikes these shoes I provide a buffer in the form of a spring 56' which is suitably arranged to yieldingly oppose outward movement of said frame.

In advance of the splitter is a presser comprising forwardly diverging cheeks 58 secured to a stem 58' which is swingably mounted on the frame 53 with the said cheeks normally in the path of the fish body at opposite sides of the plane of the splitter. This stem is pressed forwardly by a spring as 58'' which permits the frame to swing rearwardly as the fish body engages the cheeks 58 and moves them to a point adjacent the splitter.

Intermediate the cutter 39 and the presser are oppositely disposed guide plates, as 59 between which the fish body passes. These guides are supported on respective spring pressed arms 59' which are connected with each other and supported in a manner identical to that of arms 38.

Reference numeral 60 designates a rotary beater mounted in the path of the fish body at the rear end of spreader 54 on a hanger 61 and formed with ribs 60' on its opposite side surfaces which serve to break the entrails loose from the side wall of the fish. The hanger 61 is swingably engaged with a shaft 62 rotatably supported on the side members 2 and carries a shaft 61' which is connected with the shaft 62 and spindle of the beater by means of bevel gears, as shown.

Beyond the beater 60 is an entrail lodging and body scraping device comprising angularly disposed circular members 63 provided with teeth on their opposing side edges and rotatably supported on a bracket 64 to mesh with each other in the path of the carrier. The bracket 64 is swingably mounted on a swing hanger 65 depending from the shaft 62 and carries a rotatably mounted pin wheel 63' which engages one of the members 63. This pin wheel is

driven from shaft 62 by means of suitable gearing including a shaft 65, rotatably supported on hanger 65.

Mounted on the side members 2 is a rock shaft 66 carrying angularly disposed arms 67 and 67' to the former of which is connected a rod 68 which is also connected with the bracket 64 to elevate the same at its outer end to the position shown in Fig. 1. This rod is provided with a stop 68' which normally rests upon a cross member 64' of the hanger 65. Connected with the arm 67' is a rod 69 which is engaged with one end of a lever 70 fulcrumed adjacent the downwardly moving side of the wheel 7 with its lower end in the path of the projection 7' to be engaged by same to elevate the said bracket as the seats 11 travel past the members 63. Owing to the angular position of the axes of members 63 relatively to the axis of the bracket 64 it is obvious that the point of mesh of said members will be lowered as the bracket is swung upwardly, consequently the said members will be adjusted after they enter the fish for more perfect action to scrape the side walls and dislodge the entrails.

Adjacent the members 63 is a scouring and entrail removing device including a rotary member 71 formed with a circular cutting edge 72 and provided at opposite sides with ribs 73 which extend toward its axis. This member is secured to a spindle 71' journaled on a swing hanger 74 depending from the shaft 62 with the cutting edge 72 in line with the center of the path of the carrier so as to break the membrane which extends along the back bone of the fish body while the ribs 73 scour the interior surface of the body. In conjunction with the member 71 I provide means for holding the entrails to movement therewith, the same consisting of yielding bodies as 75 in the form of rollers which are preferably formed from rubber and provided with suitable bushings, as 75'. These rollers are mounted each adjacent its respective side of the member 71, on suitable axles 76, secured to respective collars 77 which are adjustably supported on the hangers 74 for adjustment of said rollers toward and from the path of the carrier. As shown the collars 77 are mounted on the journal bearings of the spindle 71' and provided with set screws 77' to secure them in adjusted positions. To insure a more perfect scraping action of the member 71 I provide at opposite sides thereof adjusters 78 between which the fish body passes. These adjusters are conveniently in the form of circular brushes secured to respective shafts 78' which are journaled at their lower ends on the hanger 74 and rotatably engaged with angle brackets 79 swingably supported on a shaft 80 rotatably mounted on the side members 2 and

driven from shaft 62 by gears 80'. The shafts 78' are connected with shaft 80 by means of bevel gears 81 suitably arranged to rotate the adjusters in the direction indicated by the arrows shown in Fig. 2, whereby the opposing sides of the adjusters will move toward member 71 and draw the fish body over the edge portion thereof and hold the same firmly thereon during the scraping operation.

Shafts 49 and 62 are connected by suitable gearing, as 82, 83 to shafts 84 and 85 respectively which shafts have power transmitted to them by shaft 86, coupled to drive shaft 9 by spur gears 87.

Hangers 74, 65 and 61 and spreading device 54 are provided with suitable stop rods 88 to limit their inward movement, and on said rods buffer springs are preferably arranged, as shown.

Now, assuming that power has been applied to pulley 10 and carrier 4 is in rotation, the operation of the machine to dress a fish body is as follows: The body is first placed on its back, in feed-way 26, with its tail end foremost, and its back fin engaged in the narrow passage way 27, then pressed forwardly to engage it between the jaws 22, during which movement said back fin is straightened, if this be necessary, then severed by the horizontally disposed blades 28. The fish body upon being pressed between jaws 22 strikes set lever 35, and moving the same, swings wiper 33' into position to be engaged by the first advancing projection 7' of wheel 7, which projection acts on said wiper to swing lever 33 and thereby advance the head 23 with the fish body as a gripping device 15 approaches the point of feed. Upon said gripping device reaching the forward or tail end portion of the fish body, wiper 17 of said gripping device passes from engagement with cam 19, thereby permitting of the gripping device closing and gripping the fish body. During upward movement of said gripping device, the fish body is engaged at opposite sides by guide members 37 and swung between guards 21 to its seat on the carrier where it is then gripped by the companion gripping device 16. While being guided by members 37 the fish body is brought beneath the fin cutter 39, which rides thereon and has the fins guided thereto by the fin guides 41, as hereinbefore described. Passing from the fin cutter 39, the body is engaged between the guide plates 59 and guided to the presser whose diverging cheeks 58 press and hold the fish body for more perfect action of the splitting cutter 52. The depth of cut of the splitter is regulated by the laterally projecting shoes 55', provided on the forward end portion of a spreader 54, which latter enters the cut made by the splitter and serves to open the body for entrance of the rotary-beater 60 which

breaks the entrails loose from the side walls of the body. From the rotary beater 60, the fish body is first conveyed to the angularly disposed circular members 63, which entering the body scrape its side walls and dislodge the entrails, then to the scouring and entrail removing device comprising the rotary members 71 over which the fish body is pressed by the adjusters 78, and rollers 75 which hold the entrails to movement with said members 71, while the fish body is carried on by carrier 4, until released upon opening of the gripping devices 15 and 16.

Having thus described my invention what I claim as new, and desire to claim by Letters Patent of the United States of America, is:—

1. In a fish dressing machine, the combination of a carrier supported for movement, means for conveying the fish bodies to said carrier, means on which said first means is supported for sliding movement, means on said carrier for removing the fish bodies from said first means and holding the same to movement with the carrier, means for connecting said first means for movement by said carrier in a direction toward the same, and spring means for returning said first means to its normal position.

2. In a fish dressing machine, a carrier supported for movement, means supported for movement for conveying a body toward said carrier, means on said carrier for removing a body from said first means, and mechanism for operating said first means controlled by a body arranged thereon to be fed.

3. In a fish dressing machine, a carrier supported for movement, a body feeding means mounted for movement toward and from said carrier, means on the carrier for removing a body from said feeding means, and mechanism for operating said feeding means set to operate by a body to be fed.

4. In a fish dressing machine, a carrier supported for movement, a feeding means mounted for movement toward and from said carrier, means on the carrier for removing a body from said feeding means, normally inactive mechanism for operating said feeding means in one direction, means controlled by a fish body arranged on the feeding means for setting said mechanism so that it will operate, and means for returning said carrier to its normal position.

5. In a fish dressing machine, a carrier supported for movement, a feeding device supported for movement toward and from said carrier, means on the carrier for removing a body from said feeding means, normally inactive mechanism for operating said device, and means for setting said mechanism so that it will operate including a member arranged to be engaged by a body being inserted into said device.

6. In a fish dressing machine, a carrier supported for movement, a feeding device comprising a head supported to slide and provided with opposing grippers, means on the carrier for removing the body from between the grippers on said head and holding it to movement with the carrier, and means for operating said feeding device controlled by a body arranged between the opposing grippers of said head.

7. In a fish dressing machine, a carrier supported for movement, a feeding device comprising a head supported for movement toward and from said carrier and provided with yielding grippers for engaging a fish body, said grippers converging in the direction of active movement of said feeding device, means on the carrier for removing a body from between the grippers on said head and holding it to movement with the carrier, and normally inactive means for operating said feeding device correlatively to movements of said carrier.

8. In a fish dressing machine, a carrier supported for movement, a feeding device supported for movement toward and from said carrier, means on the carrier removing the body from said feeding device, means for operating said feeding device, and movable means for limiting the movement of a body being inserted in said device, said last means being normally secured against movement and arranged to be released by said feeding device during movement thereof.

9. In a fish dressing machine, a carrier supported for movement, means supported to slide toward and from said carrier, grippers on said means for holding a body, gates normally arranged to limit the movement of a body being inserted between said grippers, and means on the carrier for removing the fish body from said first means and holding the same to movement with the carrier.

10. In a fish dressing machine, a carrier supported for movement, a feeding device supported for movement toward and from said carrier, a feed regulating device in advance of said feeding device to limit the movement of a body being positioned on said feeding device, said last named device being normally secured and arranged to be moved from the path of said feeding device during movement thereof, means for operating said feeding device, and means on the carrier for removing a body from said feeding device.

11. In a fish dressing machine, a carrier supported for rotation, means rotatable with said carrier provided with a plurality of spaced projections, a body feeding device supported for movement toward and from said carrier, means on the carrier for removing a body from the feeding device, and mechanism for operating said feeding device including a wiper arranged for engaging

ment with the projections on said rotatable means.

12. In a fish dressing machine, a carrier supported for rotation, a feeding device supported for movement toward and from said carrier, means on the carrier for removing a body from said feeding device, a rotatable element provided with spaced projections, mechanism for operating said device including a wiper, and means for moving said wiper into and out of the path of the projections on said rotatable element.

13. In a fish dressing machine, a carrier supported for rotation, a body feeding device supported for movement toward and from said carrier, means on the carrier for removing a body from said feeding device, mechanism connected to the feeding device to operate the same, and means movable with the carrier for operating said mechanism.

14. In a fish dressing machine, a carrier supported for rotation, a body feeding device supported for movement toward and from said carrier, means on the carrier for gripping the body fed by said device, a means movable with the carrier and provided with spaced projections, mechanism for operating said device including a member movable into and out of the path of the projections on said last means, and means controlled from the feeding device for setting said member so that said mechanism will be operated.

15. In a fish dressing machine, a carrier supported for rotation, a feed device supported for movement toward and from said carrier and being yieldingly held in retracted position, means for moving said device toward the carrier, and means on the carrier for removing a body from said device.

16. In a fish dressing machine, a carrier supported for movement, a means slidably supported for movement toward and from said carrier for feeding a body thereto, means for regulating the feed of a body into said last means consisting of gates, arms on said gates engaged by said feed means to prevent movement of the gates, means for operating said feed means, and means on the carrier for gripping a body fed by said feed means.

17. In a fish dressing machine, a carrier supported for rotation, means on the carrier for holding a body, a feed way extending at an angle to said carrier, and stationary spring pressed guide members supported above said feed way and consisting of segmental plates arranged to have a body on said carrier moved therebetween the lower end portion of said plates being curved outwardly.

18. In a fish dressing machine, a carrier comprising a hub, an outwardly projecting

arm on said hub, a seat for a fish body supported on the outer end of said arm for relative angular adjustment and projecting from one side thereof, and gripping devices pivoted directly to said arm and projecting on opposite sides of said seat.

19. In a fish dressing machine, a carrier comprising a hub, an outwardly projecting arm on said hub, a seat for a fish body pivoted on the outer end of said arm, and adjustable means for securing said seat from movement.

20. In a fish dressing machine, a carrier provided with a seat for a fish body, movable gripping devices on said carrier projecting on opposite sides of said seat for holding a body thereon, and yielding guards on said carrier adapted to engage the fish body to hold the same from movement with said gripping devices when said gripping devices are opened.

21. In a fish dressing machine, a carrier provided with a seat for a fish body, opposite pairs of movable gripping devices arranged to grip the body on said seat, means to open and close said gripping devices, and yielding guards arranged at opposite sides of said seat between said gripping devices for holding the fish body from movement with said gripping devices when said gripping devices are opened.

22. In a fish dressing machine, a cutting device and guides for supporting a fish body to be fed to said device, said guides being spaced for reception of a fin of the fish body therebetween and provided with means to cause the fish body to move upwardly on said guides as it is fed.

23. In a fish dressing machine, a cutting device, and spaced guides having concaved upper faces for supporting a fish body to be fed to said cutting device, said guides having the contiguous edges of their delivery ends converged and provided with upwardly inclined surfaces arranged on opposite sides of said converging edge portions to have the fish body ride thereover.

24. In a fish dressing machine, a cutting device, and concaved guides for supporting a body to be fed to said cutting device, said guides being spaced for reception of a fin of the fish body therebetween and provided at their delivery end portions with upwardly inclined surfaces disposed in the path of the fish body, the contiguous edge portions of said guides adjacent said inclined surfaces being converged.

25. In a fish dressing machine, a cutting device, spaced guides for supporting a fish body to be fed to said cutting device having forwardly converged contiguous edges adapted to receive therebetween a fin of the fish body and upwardly inclined surfaces on opposite sides thereof, and a guard having an upwardly inclined upper surface disposed

beneath the converging edge portions of said guides.

26. In a fish dressing machine, a carrier supported for movement and provided with a seat and a device supported so as to be immovable with the carrier for centering a fish body on said seat, said device comprising opposite members, and means connecting said members to cause them to move laterally equal distances when a fish body is moved therebetween.

27. In a fish dressing machine, a carrier supported for movement and provided with a seat, and a device for centering a fish body on said seat comprising members swingingly supported on means immovable with the carrier, toothed bodies fixed on said members, said bodies being in mesh, and means on the lower portions of said members arranged to have the fish body pass therebetween.

28. In a fish dressing machine, a carrier supported for movement, means on the carrier for holding a body, a cutter secured to a fixed part and having a heel arranged in the path of travel of a body mounted in said means, the cutting edge of the cutter being arranged above and in advance of said heel, and a rotary guard for the cutting edge of said cutter disposed in front thereof for engagement with the fish body.

29. In a fish dressing machine, a carrier supported for movement, means on the carrier for holding a body, a cutting device secured to a fixed part and arranged in the path of travel of a body mounted in said means, and a rotary guard for the cutting device arranged to engage the first body in advance of said cutting device.

30. In a fish dressing machine, a carrier supported for movement, means on the carrier for holding a body, a cutter secured to a fixed part and having a heel arranged in the path of travel of a body mounted in said means, the cutting edge of the cutter being arranged above and in advance of said heel, and a guard for said cutter, said guard being supported for rotation to engage the fish body in advance of the cutting edge of said cutter.

31. In a fish dressing machine, a carrier supported for movement, means on the carrier for holding a body, a cutting device secured to a fixed part and arranged in the path of a body mounted in said means, fin guides projecting forwardly of said cutting device, and a guard for said cutting device arranged above said fin guides for engagement with the fish body.

32. In a fish dressing machine, a carrier supported for movement, means on the carrier for holding a body, a fin cutter secured to a fixed part, means for guiding the fins to said cutter, and means supported for movement to engage and remove the severed fins from about said cutter.

33. In a fish dressing machine, a carrier supported for movement, means on the carrier for holding a body, a fin cutter supported in the path of the carrier, means for supporting the fins severed by said cutter, and means for removing fins from said last means.

34. In a fish dressing machine, a carrier supported for movement, means on the carrier for holding a body, a fin cutter supported in the path of the carrier, fin guides projecting forwardly of said cutter, a plate on one of said guides for supporting the fins severed by said cutter, and means for removing fins from said plate.

35. In a fish dressing machine, a carrier supported for movement, means on the carrier for holding a body, a fin cutter supported in the path of the carrier, and rotatable means for removing severed fins from about said cutter.

36. In a fish dressing machine, a frame, a carrier supported on said frame for movement, a head supported on said frame and disposed in the path of said carrier, a cutting means mounted for rotation on said head, and fin guides guided on said head for bodily sliding movement toward and from one another.

37. In a fish dressing machine, a frame, a carrier supported on said frame for movement, a head supported on said frame and disposed in the path of said carrier, a cutting means mounted on said head for rotation, and bodily movable fin guides having curved stems slidably engaged with said head.

38. In a fish dressing machine, a frame, a carrier supported thereon for movement, means on the carrier for holding a body, a splitter arranged in the path of said carrier, means swingingly connected with the frame for supporting said splitter, and shoes on opposite sides of said splitter swingingly connected to said last means.

39. In a fish dressing machine, a main frame, a carrier supported thereon for movement, means on the carrier for holding a body, a frame swingingly supported on said main frame, a splitter supported by said last frame, a yieldingly pressed means connected with said last frame for independent movement toward and from the carrier, and shoes on said last means disposed to engage the fish body to regulate the depth of cut of said splitter.

40. In a fish dressing machine, a frame, a carrier supported thereon for movement, a splitter supported on said frame for movement toward and from the carrier, a body entering device supported to the rear of said splitter, a spreader arranged between said splitter and body entering device, the rear portion of said spreader having outwardly flared portions arranged on opposite sides of

said body entering device, and shoes on the forward portion of said spreader associated with said splitter to regulate the depth of cut thereof, for the purpose specified.

5 41. In a fish dressing machine, a frame, a carrier supported thereon for rotation, a splitter supported for movement toward and from the carrier, a body entering device supported to the rear of said splitter, and means
10 extending from the splitter to said body entering device arranged to enter the fish through the cut made by said splitter, and being supported from said frame for movement independent of said body entering device.
15 vice.

42. In a fish dressing machine, a frame, a carrier supported thereon for movement, means on said carrier for holding a body, a splitter supported on said frame, and a
20 swingingly supported presser arranged forwardly of said splitter for movement toward the same so as to press down on the fish body and thereby hold it during the splitting operation.

25 43. In a fish dressing machine, a frame, a carrier supported thereon for movement, means on said carrier for holding a body, a splitter supported on said frame for movement toward and from said carrier, and a
30 presser arranged forwardly of said splitter and being supported for movement independent thereof.

44. In a fish dressing machine, a frame, a carrier supported thereon for movement,
35 means on said carrier for holding a body, a splitter supported on said frame, and a presser supported in front of said splitter for movement toward and from the same and being arranged to bear down on a body
40 in advance thereof.

45. In a fish dressing machine, a carrier supported for movement, means thereon for holding a body, and an entrail dislodging device comprising coacting members mounted
45 ed for rotation in the path of said carrier and arranged side by side laterally of the same to simultaneously enter the fish body.

46. In a fish dressing machine, a carrier supported for movement, means thereon for
50 holding a body and an entrail dislodging device supported in the path of said carrier comprising coacting angularly disposed rotatable members having opposing gripping portions.

55 47. In a fish dressing machine, a carrier supported for movement, means thereon for holding a body, a body entering device supported in the path of said carrier for movement toward and from the same comprising
60 coacting rotatably mounted gripping members, and means for rotating said gripping members.

48. In a fish dressing machine, a frame, a carrier supported thereon for movement,
35 means on the carrier for holding a body, a

hanger swingingly supported on said frame, coacting body entering grippers rotatably mounted on said hanger in the path of said carrier, and means to rotate said grippers.

49. In a fish dressing machine, a carrier 70 supported for movement, means thereon for holding a body, a bracket supported on a fixed part for swinging, coacting grippers rotatably mounted in said bracket and arranged in the path of the fish bodies conveyed on said carrier, the axes of said grippers being at an angle to the axis of swing of said bracket, means to rotate said grippers, and means to swing said bracket.
75

50. In a fish dressing machine, a carrier 80 supported for movement, means thereon for holding a body, coacting rotatable angularly disposed grippers, means to rotate said grippers, means swingingly supported in the path of said carrier on which said grippers 85 are mounted for rotation and means to automatically swing said last means during movement of the carrier.

51. In a fish dressing machine, a carrier supported for movement, means thereon for 90 holding a body, coacting rotatable angularly disposed grippers having meshing teeth arranged in the path of said carrier, a support for said grippers, means on which said support is swingingly mounted, means to 95 rotate said grippers, and means to swing said last means during movement of the carrier.

52. In a fish dressing machine, a carrier supported for movement, means thereon for 100 holding a body, a rotatable body entering scraper supported in the path of said carrier for movement toward and from the same, and rotatable means at opposite sides of said scraper for drawing the fish body 105 thereover.

53. In a fish dressing machine, a carrier supported for movement, means thereon for holding a body, a body entering scraper supported in the path of said carrier for 110 movement toward and from the same, rotatable means on opposite sides of said scraper between which the fish passes, means to rotate said last means, the opposing sides of said rotatable means moving toward the 115 scraper, as specified.

54. In a fish dressing machine, a carrier supported for movement, means thereon for holding a body, and an entrail removing device supported in the path of the carrier 120 consisting of a rotatable member, and means arranged at opposite sides thereof for direct engagement with the entrails to hold the same on said rotatable member while the body is moved past the same. 125

55. In a fish dressing machine, a carrier supported for movement, means thereon for holding a body, and an entrail removing device supported in the path of the carrier consisting of a rotatable member, and rota- 130

table means at opposite sides thereof for directly engaging and holding the entrails thereon while the body is being moved past the same.

5 56. In a fish dressing machine, a carrier supported for movement, means thereon for holding a body, an entrail removing device supported in the path of said carrier consisting of a rotatable member and means at
10 opposite sides thereof for directly engaging and holding the entrails whereby the entrails will be drawn out of the body, and means between which the fish body passes for drawing the same over said rotatable
15 members.

57. In a fish dressing machine, a cutting device, and concaved guides for supporting a fish body to be fed to said cutting device, said guides being spaced for reception of a
20 fin of the fish body and being formed with forwardly and outwardly inclined portions arranged to have the fish body move thereon, whereby the fish body will be moved outwardly as it approaches said cutting device.

25 58. In a fish dressing machine, a cutting

device, and spaced guides arranged to have the fish body seated thereon with its fin therebetween and provided with means for effecting outward movement of the fish body relatively to said guides as the fish body is
30 guided toward said cutting device, said fin receiving space rearwardly of its receiving end portion converging toward said cutting device.

59. In a fish dressing machine, a cutting
35 device, means for conveying a body thereto, a guide means immovable relatively to said first means and comprising cooperating movable members arranged to have the body
40 conveyed on said first means and pass therebetween, and means connecting said members for equal movement laterally of said first means.

Signed at Seattle, Washington this 1st day of September 1906.

EDMUND AUGUSTINE SMITH.

Witnesses:

ARLITA ADAMS,

EDWARD W. CRESSMAN.