

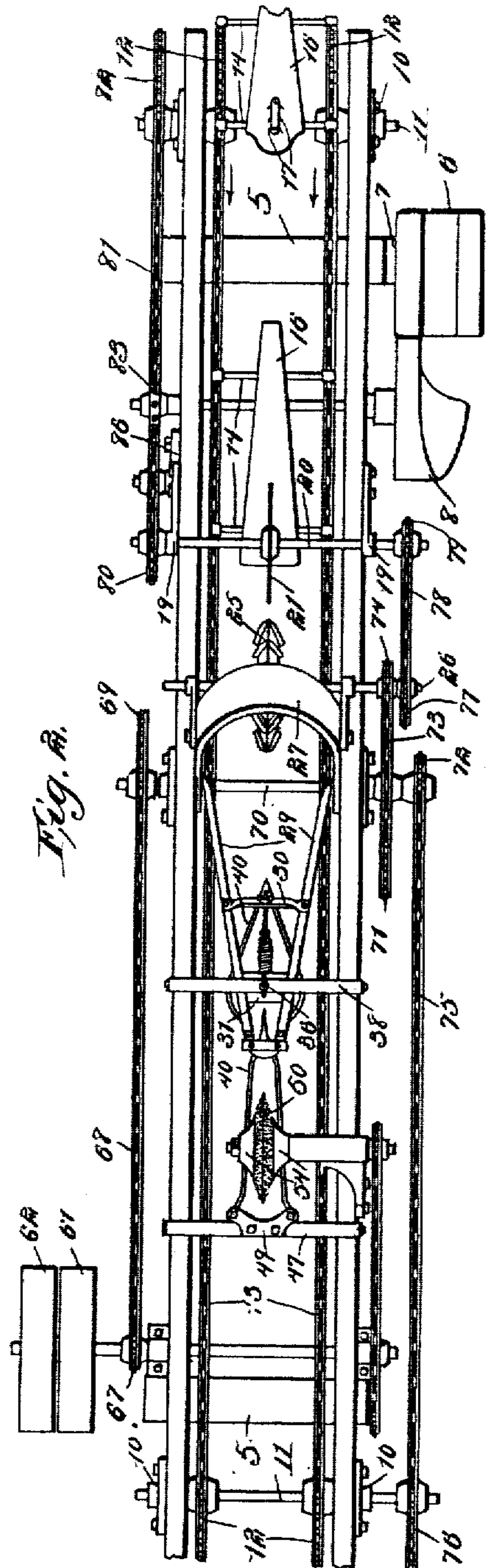
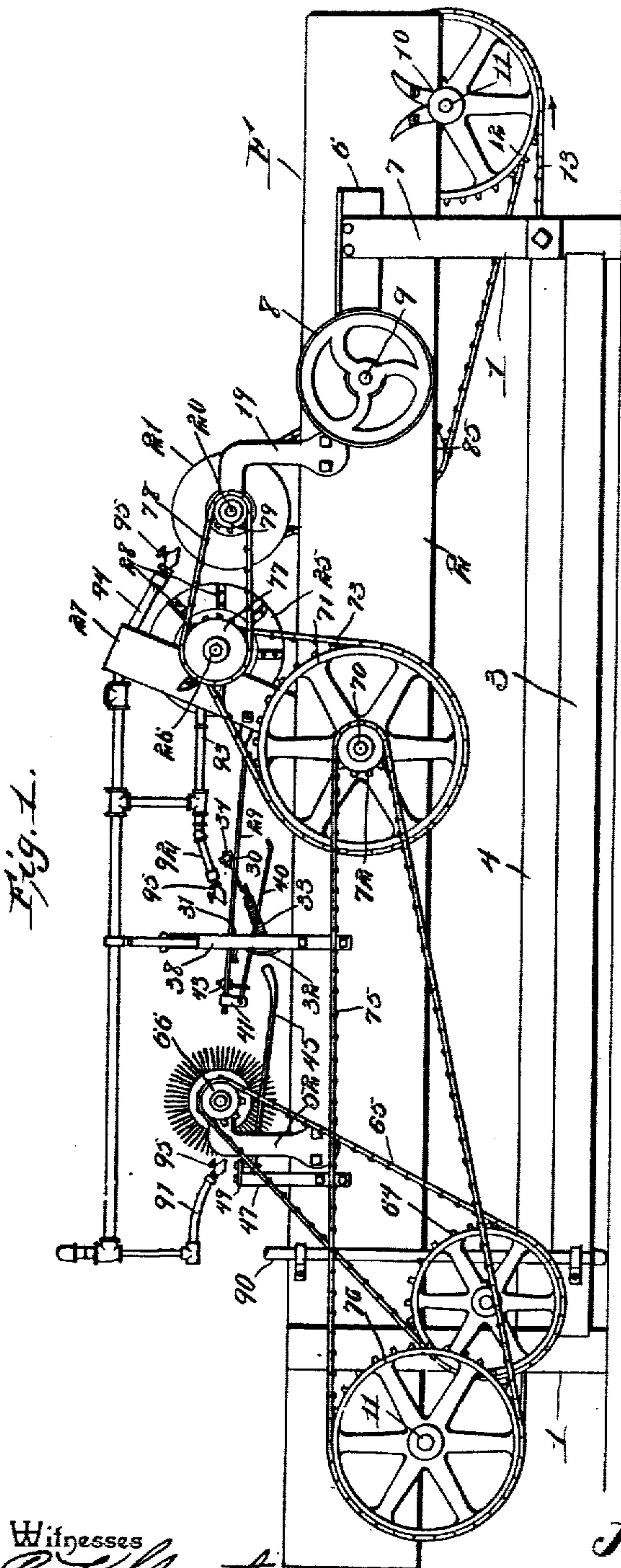
No. 782,249.

PATENTED FEB. 14, 1905.

J. A. HUGHLETT.
FISH BUTCHERING AND CLEANING MACHINE.

APPLICATION FILED SEPT. 18, 1903.

3 SHEETS—SHEET 1.



Witnesses
E. J. Stewart
Dexter Norton

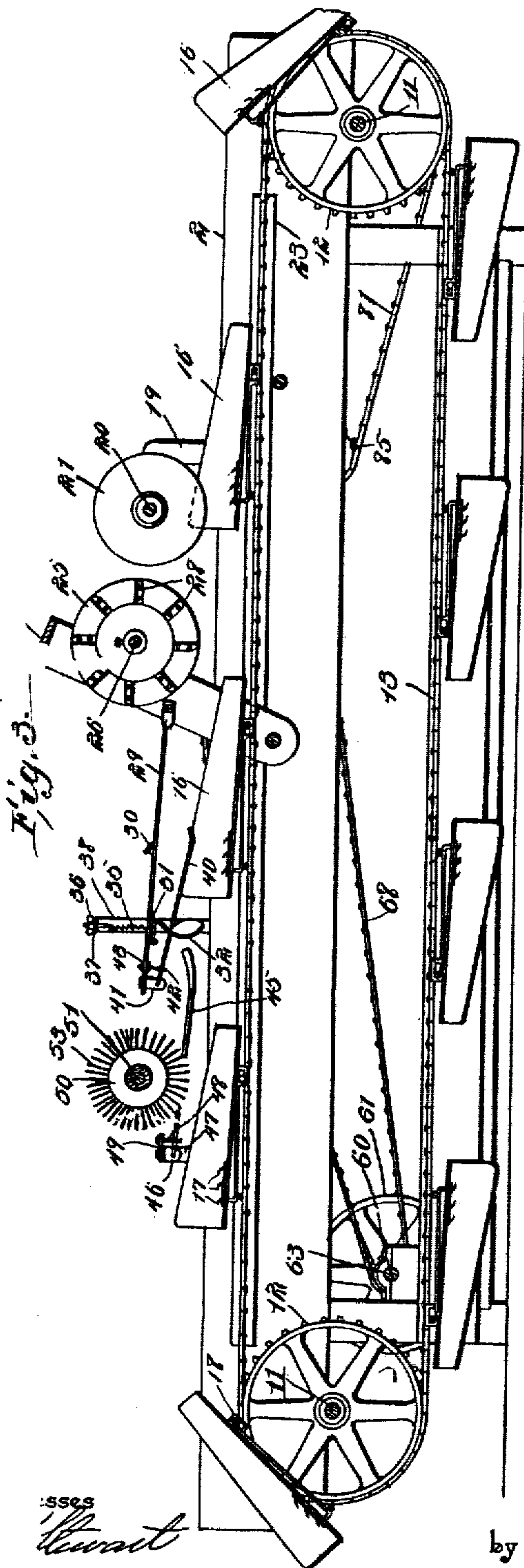
J. A. Hughlett, Inventor,
by *C. A. Snow & Co.*
Attorneys

PATENTED FEB. 14, 1905.

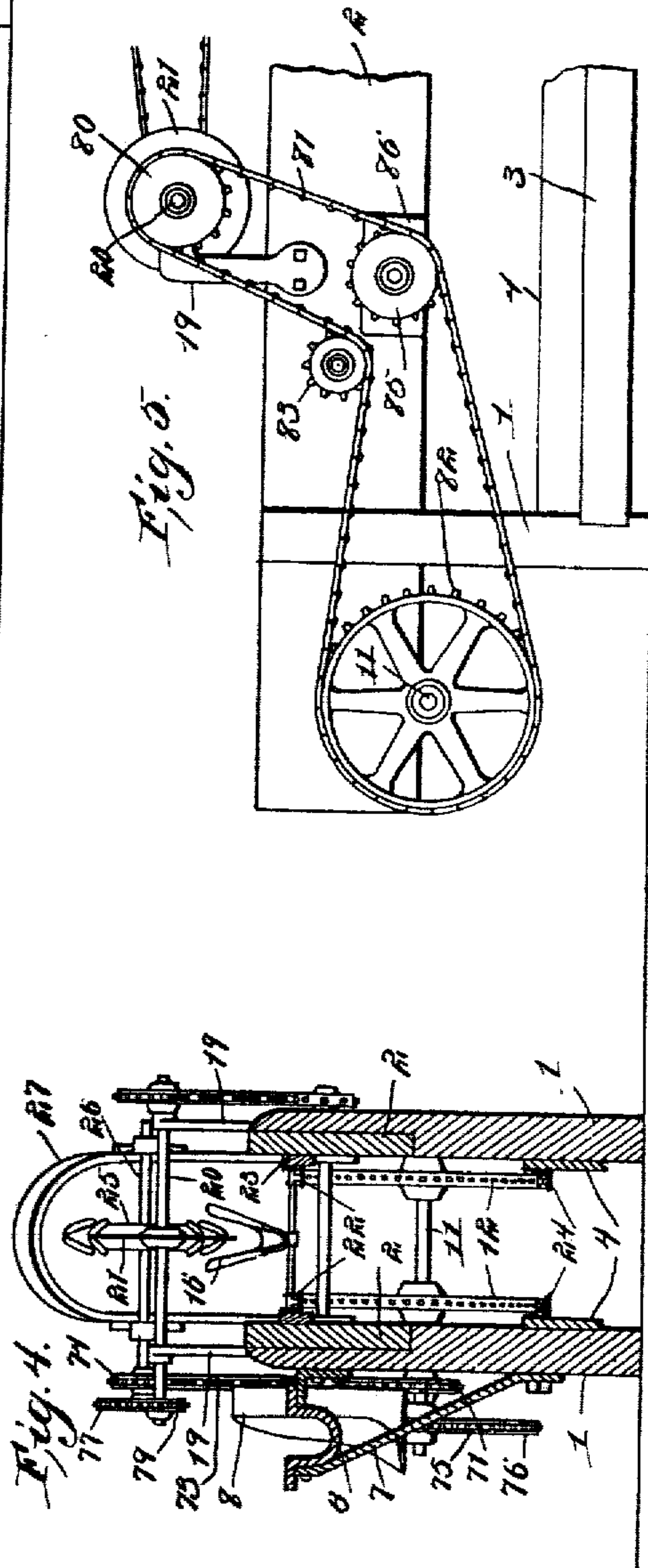
J. A. HUGHLETT.
ISH BUTCHERING AND CLEANING MACHINE.

APPLICATION FILED SEPT. 18, 1903.

3 SHEETS—SHEET 2.



Wm. A. Morton
i. Morton

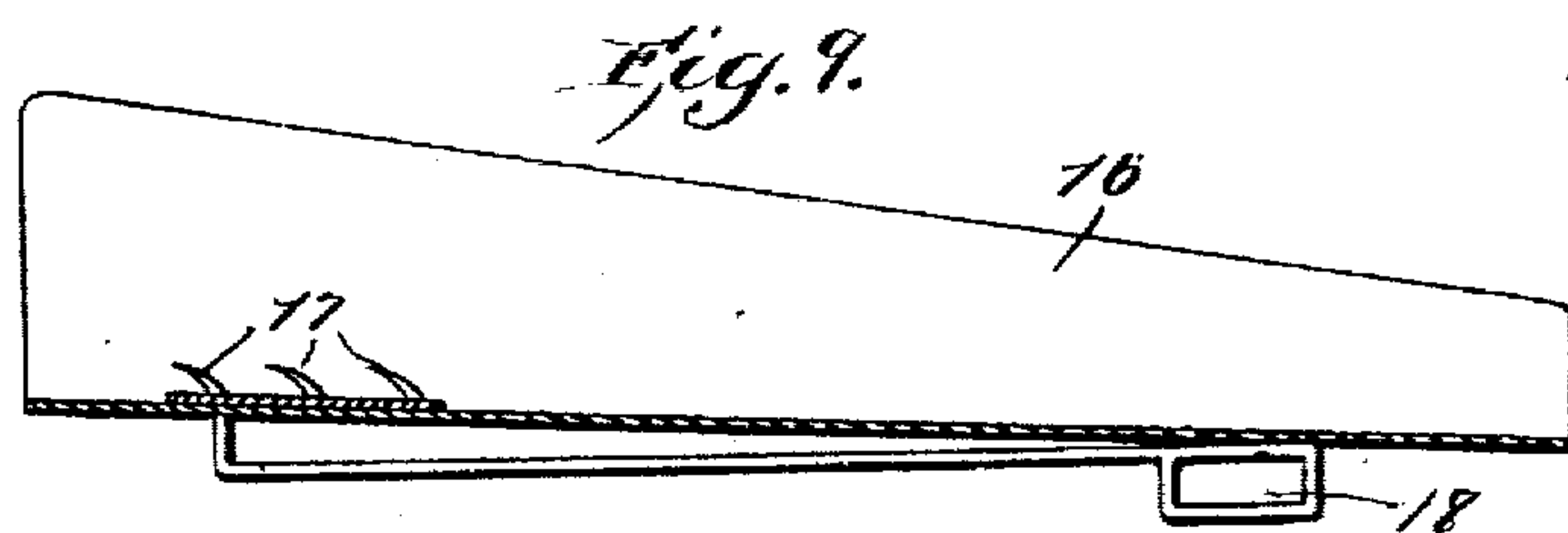
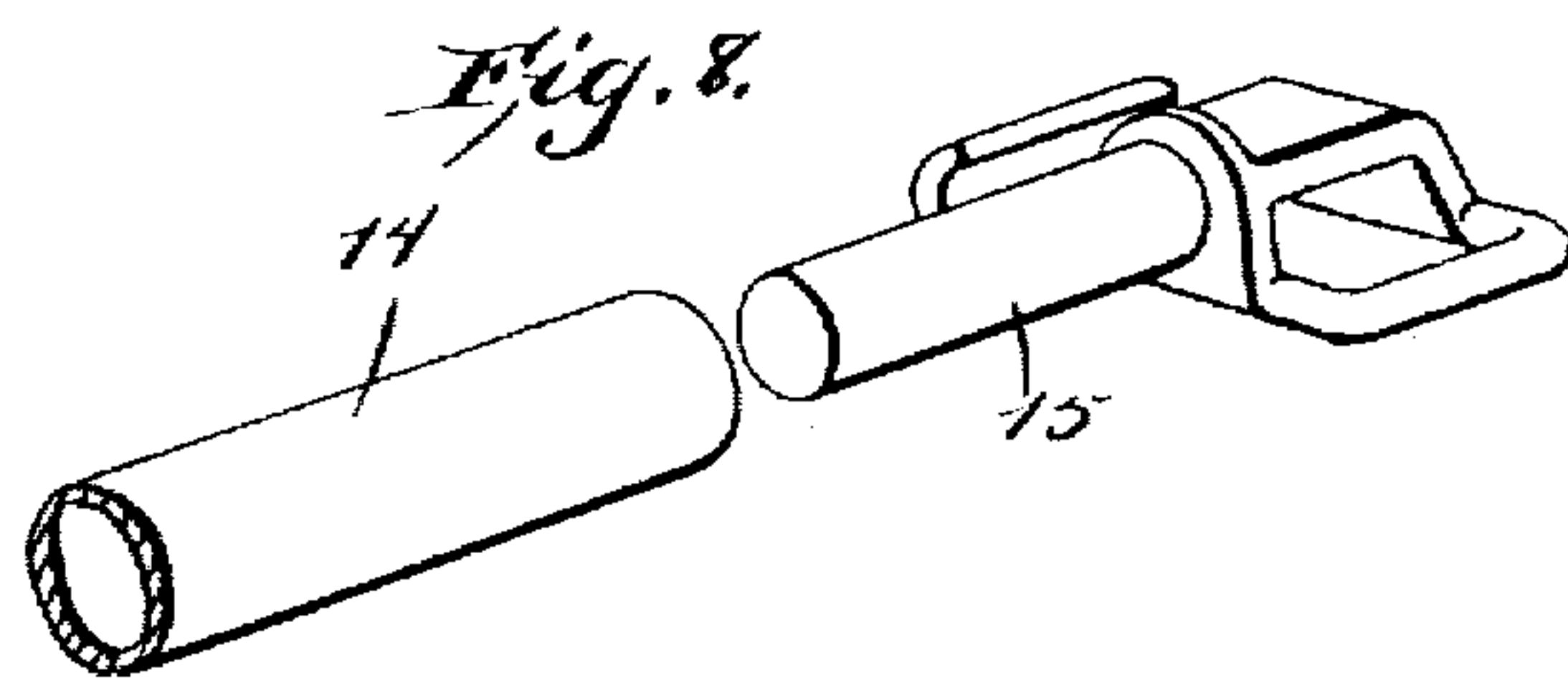
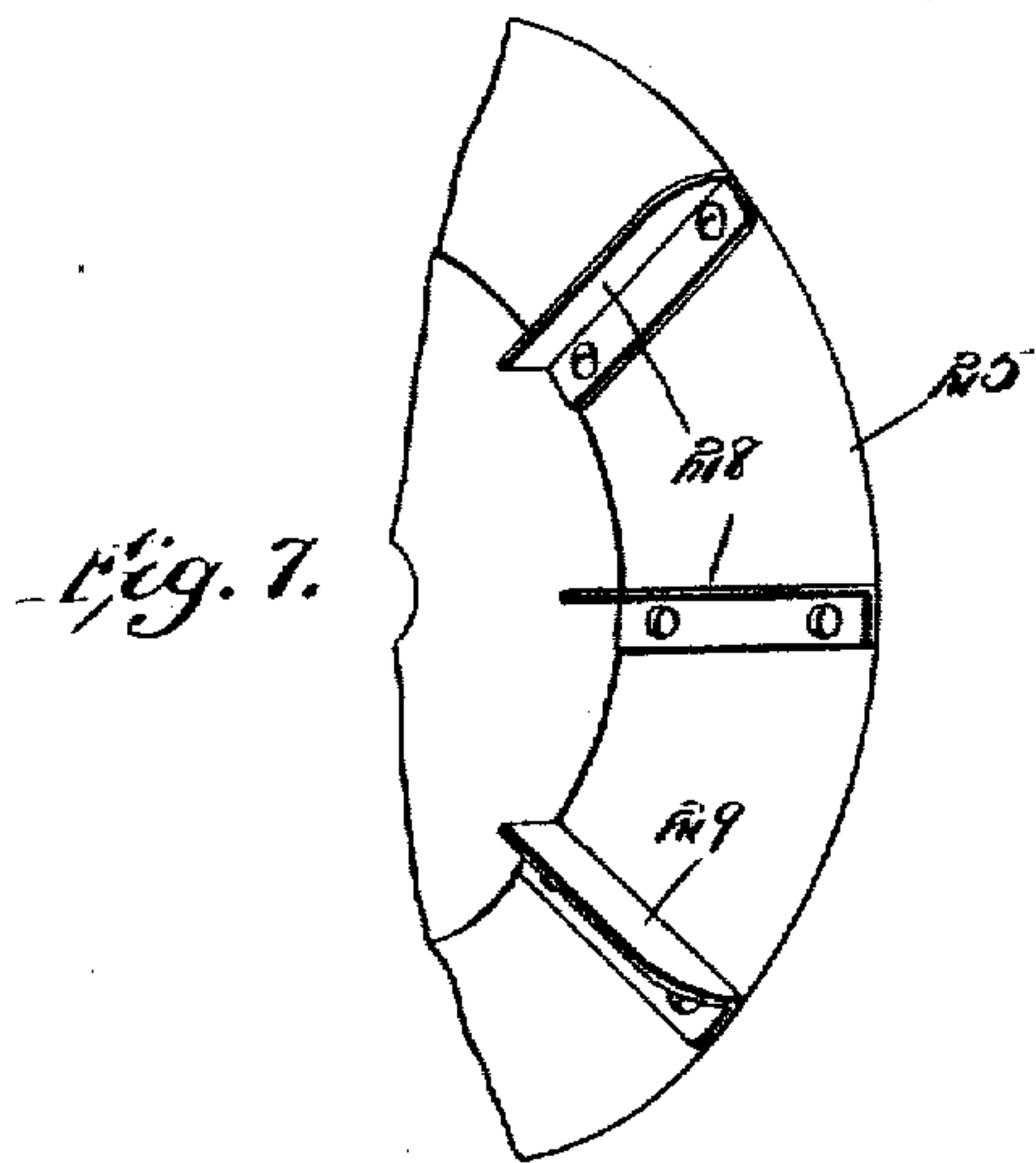
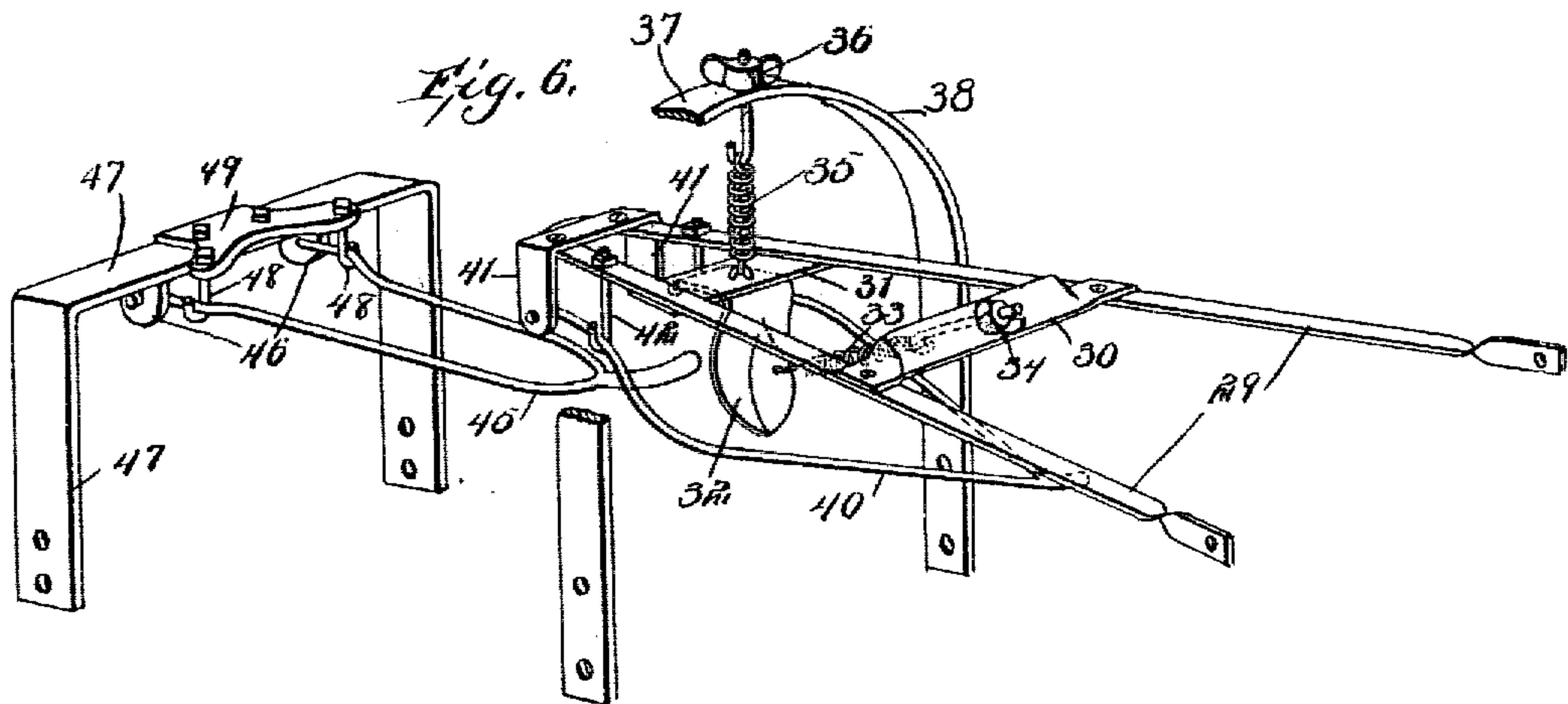


J. A. Hughlett Inventor
by C. A. Snow & Co. Attorneys

J. A. HUGHLETT.
FISH BUTCHERING AND CLEANING MACHINE.

APPLICATION FILED SEPT. 18, 1903.

3 SHEETS—SHEET 3.



Witnesses
E. F. Stewart
Baxter Morton

J. A. Hughlett, Inventor.
by *C. A. Snowles*
Attorneys

UNITED STATES PATENT OFFICE.

JOSEPH A. HUGHLETT, OF BLAINE, WASHINGTON.

FISH BUTCHERING AND CLEANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 782,249, dated February 14, 1905.

Application filed September 18, 1903. Serial No. 173,717.

To all whom it may concern:

Be it known that I, JOSEPH A. HUGHLETT, a citizen of the United States, residing at Blaine, in the county of Whatcom and State of Washington, have invented a new and useful Fish Butchering and Cleaning Machine, of which the following is a specification.

This invention relates to fish butchering and cleaning machines.

The principal objects contemplated in the invention are to provide a fish butchering and cleaning machine of comparatively simple structure which is susceptible of operation at high speed and to increase the efficiency and durability of such machines.

The invention consists in the construction and combination of parts of a fish-butchering machine, as hereinafter described, illustrated in the accompanying drawings, and having the novel features pointed out in the appended claims.

In the drawings, Figure 1 is a view in side elevation of the complete machine. Fig. 2 is a plan view with parts broken away to avoid concealing some of the details of construction. Fig. 3 is a view in vertical longitudinal section. Fig. 4 is a view in transverse vertical section through the plane of the shaft near the front of the machine, on which are mounted the sprockets carrying the conveyer-chains. Figs. 5, 6, 7, 8, and 9 are detail views of various parts of the machine.

Referring to the drawings, in which corresponding parts are designated by the same characters of reference, F designates the supporting-framework of the machine, which may be of any preferred construction. In the form of the invention illustrated the supporting-frame comprises uprights 1, arranged in pairs near the ends of the machine, upper side bars 2 at the tops of the uprights, which are cut away to form seats for the side bars, longitudinal braces 3 near the bottom of the uprights, and lower side bars 4, bolted to the braces, as best seen in Fig. 4. The two sides of the frame are connected by means of a plurality of shafts and other members, which will hereinafter be described, and by cross-braces 5, arranged between the uprights below the longitudinal braces 3. The entire frame

is securely bolted together, so that it will have the solidity necessary to permit the machine to be run at high speed.

At the front of the machine on one side is provided a trough 6, which is supported by a bracket 7, bolted upon one of the uprights. Just behind the trough 6 a cylindrical knife 8, with a spirally-arranged edge, is rotatably mounted upon a shaft 9, journaled in suitable bearings provided in the side bars 2. The trough 6 is of such size that a fish may be conveniently supported therein in such position that the spiral edge of the cylindrical knife 8, which is kept continuously revolving at the end of the trough, will sever the head of the fish from the body, which will be left intact.

Near both ends of the machine bearing-brackets 10 are bolted to the underside of the side bars 2 to support shafts 11, which extend transversely of the frame and carry between the side bars sprockets 12, which are spaced apart, as best shown in Figs. 2 and 4. The sprockets 12 are of such size that the tops thereof lie but a slight distance below the upper edges of the side bars 2, and the two chains 13 are supported on the sprockets for travel in the direction denoted by the arrows. At intervals on the sprocket-chains there are arranged transverse tubular members 14, which are supported on studs 15, projecting laterally from some of the chain-links and forming journals upon which the members 14 may turn. The transverse members are arranged in pairs, of which there are nine in all in the machine illustrated, and upon each pair of transverse members a sheet-iron form 16 is mounted. Each form 16 presents a concavity to receive a fish and is tapered toward one end, so that when a fish is laid in position in one of the forms and started through the machine it will not slip out at the end of the form if it encounters an obstruction. Each form is also provided in the bottom with a plurality of spurs disposed in the direction of travel, as shown at 17, and these spurs by engaging with the back of the fish when placed in the form hold it securely. The forms 16 are bolted securely to the transverse members 14 at their forward end; but the members 14 at

their rear ends pass through elongated eyes 18 to permit a certain amount of play of the transverse members therein when the forms pass around the sprockets 12. Each form is so mounted upon the members 14 that the end in advance is higher than the end behind, so that the fish in the form will be supported on an incline.

At a short distance from the front of the machine rigid bearing-brackets 19 rise above the level of the side bars 2 and support a shaft 20, upon which is mounted a knife 21 in the form of a revolving disk of such size that when one of the forms 16 bearing a decapitated fish passes under the knife 21 the fish will be slit along the median line of the belly.

In order to hold the chains 13 at the proper height for the fish-supporting forms carried thereby to present the fish to the knife 21 and to the cleaning devices presently to be described, longitudinal guides 22, preferably of angle-iron, are mounted on blocks 23, fastened to the inner faces of the side bars 2. To prevent sagging of the chains 13 when returning along the bottoms of the machine, similar guides 24 are mounted on the lower side bars 4.

Just behind the disk knife 21 a cleaning-wheel 25 is mounted upon a shaft 26, supported in bearing-blocks bolted to a yoke 27, whose ends are secured to the side bars 2. The cleaning-wheel 25 presents a V-shaped edge around its entire periphery, and cleaner-plates 28, arranged in pairs, as shown, are radially mounted on both sides of the wheel at short intervals.

Just behind the cleaning-wheel there projects rearward from the yoke 27 a frame 29, narrowing toward its rear end and provided with a cross-bar 30. Near the rear of the frame 29 there is attached thereto on the under side a plate 31, to which is hinged a combined knife and scraper 32. The member 32 is held normally in the position shown in Fig. 3 by means of a tension-spring 33, one end of which is connected with the member and the other end of which passes through an opening in the cross-bar 30, where it is secured by means of an adjusting thumb-nut 34. The frame 29 is pivoted to the yoke 27, and the rear end of the frame is yieldably supported by a coiled spring 35, whose upper end is attached, by means of an adjusting thumb-nut 36, to a cross-bar 37 in a yoke 38, rising from the side bars of the machine. The lower end of the spring 35 is attached to the plate 31.

The combined knife and scraper 32 is provided to slit the membrane near the backbone of the fish by, which the blood of the fish is chiefly covered, and to scrape the membrane and the blood out of the fish as it passes in one of the forms 16. Before the fish reaches the member 32 the intestines will have been removed by the scraping-wheel 25 and the membrane covering the blood will be exposed. In order to open the body of the fish so that

the member 32 may perform its function, a spreader 40 is pivotally mounted in suspension-lugs 41 at the rear of the frame 29, and hook-bolts 42, having adjusting-nuts 43, are provided to adjust the position of the spreader members to the proper height. After passing the member 32 the fish will be engaged by a second spreader 45, pivotally mounted in suspension-lugs 46, provided under a low arch 47 near the rear of the machine. The spreader 45 is adjusted in position by means of hook-bolts 48, supported in a plate 49 on the arch 47, and projects forward to a point just behind the member 32, so that the sides of the fish will pass directly from the spreader 40 to the spreader 45. Arranged between the sides of the spreader 45 and at a suitable height is a cleaning-wheel 50, mounted on a shaft 51, which is journaled in a bearing-bracket 52, that rises from one of the side bars of the machine. The cleaning-wheel 50 consists, preferably, of suitably arranged fibers 53, of whalebone or horn, which are held between flanged collars 54; but wire may be used in lieu of the fibers 53, if desired.

To impart motion to the various members of the machine described in the foregoing paragraphs, a plurality of sprocket wheels and chains are employed in connection with a main driving-shaft 60, bearing fast and loose pulleys 61 and 62. The shaft 60 is journaled in bearing-blocks 63, mounted on the uprights at the rear of the machine, and has secured thereto on the end opposite the pulleys a driving-sprocket 64, from which a chain 65 extends to a sprocket 66 on the shaft 51, which carries the cleaning-brush. Between the pulleys and the frame of the machine a small sprocket 67 is mounted on the shaft 60 and imparts motion to the chain 68, which runs over a large sprocket 69 on a shaft 70 about the middle of the machine. On the end of the shaft 70 opposite the sprocket 69 are mounted a large sprocket 71 and a small sprocket 72. The large sprocket 71 carries a chain 73, which runs over a small sprocket 74 on the shaft 26 and imparts rapid motion thereto. The small sprocket 72 carries a chain 75, which also travels over and imparts movement to a large sprocket 76 on the rear shaft 11, and so operates at slower speed the conveyer-chains 13. The shaft 26 carries a small sprocket 77, over which runs a chain 78 to impart movement to a sprocket 79 on the shaft 20, which carries the splitting-knife 21. At the end of the shaft 20 opposite the sprocket 79 is a larger sprocket 80, over which travels the chain 81, which also runs over a sprocket 82 on the front shaft 11. The chain 81 runs under a small sprocket 83 on the shaft 9, to which it imparts movement, and the chain is kept tight by means of an idle sprocket 85, journaled on a stud projecting from a plate 86, which is bolted to one of the side bars 2.

To prevent the accumulation of blood mem-

branes and the like upon the knife, scrapers, and cleaning-brush and also to aid in cleansing the fish as they pass through the machine, water is supplied through a main supply-pipe 5 90, arranged at the rear of the machine and distributed through branch pipes 91, 92, 93, and 94, each of which terminates in a stop-cock 95, by means of which the strength of the stream may be controlled.

10 The operation of the machine will be readily understood from the foregoing description and the accompanying drawings and, briefly stated, is as follows: The machine having been set in operation by means of a belt running 15 over the fast pulley 61 and driven from any suitable source of power, the operator will place a fish in the trough 6 with the head projecting from the rear in such position that it will be severed by the revolving knife 8. As 20 soon as head has been cut off the fish will be laid in one of the forms 16, which will then be adjacent to the trough 6. In introducing the fish into the form 16 the operator will force it down upon the spurs 17, so that it will be 25 securely held, and will then introduce another fish into the trough for decapitation. The fish placed in the form 16 will be carried by the travel of the form toward the rear of the machine and will pass successively under the 30 knife 21, the scraping-wheel 25, the combined knife and scraper, and the cleaning-wheel 50, the operations of which have already been explained. In passing beneath the several devices mentioned in the preceding sentence 35 the intestines and other viscera will be removed from the fish, and it will be cleansed by the water discharged through the stop-cocks 95. When the fish reach the rear of the machine, they will be removed from form 16 40 and placed in any suitable receptacle for further handling.

The driving mechanism of the machine is so constructed that the knife 8 makes a revolution just before each of the forms 16 passes 45 the trough 6, so that a form is always in position to receive a fish as soon as its head is cut off. Consequently the machine may be operated at a speed determined by the operator's ability to introduce fish into the trough 50 6 and transfer them after the decapitation to the forms 16. As the forms 16 are tapered, they are adapted to receive fish of quite different sizes, and as the knife and scraper 32 is yieldably supported it will adapt itself automatically to the size of the fish passing under 55 it. The machine is thus adapted to operate equally well upon fish of different sizes, as it is not necessary that the slitting-knife, the cleaning-wheel, and the cleaning-brush be shifted 60 in position to act upon fish of different sizes.

It will be readily seen that the machine is

exceedingly staunch in design, so as to withstand the strains incident to operation at high speed, that the parts are positively driven at speeds so related that the fish will be thoroughly 65 cleaned in passing through the machine, and that there is nothing about the machine which will be easily broken or rendered inoperative.

Having thus described the construction and operation of my invention, what I claim as new, 70 and desire to secure by Letters Patent, is—

1. In a fish-butchering machine, the combination with a supporting-frame and cleaning devices, of a fish-conveyer comprising a pair of endless chains spaced apart, transverse 75 bars arranged at intervals between said chains, and fish-receiving forms tapering toward one end and provided with spurs in the bottom.

2. In a fish-butchering machine, the combination with a supporting-frame and cleaning 80 devices, of a fish-conveyer comprising a pair of endless chains spaced apart, sprocket-wheels to impart movement to said chains, transverse members arranged in pairs between said chains, and fish-receiving forms 85 arranged one on each pair of transverse members, each form being fixed on the transverse member in advance and slidably connected with the transverse member in the rear.

3. In a fish-butchering machine, the combination with a fish-conveyer, of fish slitting and 90 scraping mechanism arranged in the plane of travel of said conveyer, a yielding support behind said devices, a combined membrane slitter and scraper hinged to said support and 95 means for holding said combined slitter and scraper normally in operative position.

4. In a fish-butchering machine, the combination of a fish-conveyer, a supporting-frame pivotally mounted above said conveyer, a suspension-spring to keep said supporting-frame 100 normally at a certain distance above the conveyer, a spreading device on said support, and a combined membrane slitter and scraper mounted on said support between the sides of 105 the spreader.

5. In a fish-butchering machine, the combination of a fish-conveyer, a yieldably-supported frame above said conveyer, a fish-spreading device adjustably mounted on said 110 frame, a combined membrane slitter and scraper hinged to said frame between the sides of the spreading device, and a spring to hold said combined slitter and scraper in operative position. 115

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

JOSEPH A. HUGHLETT.

Witnesses:

A. Y. SURY,

C. C. McDONALD.