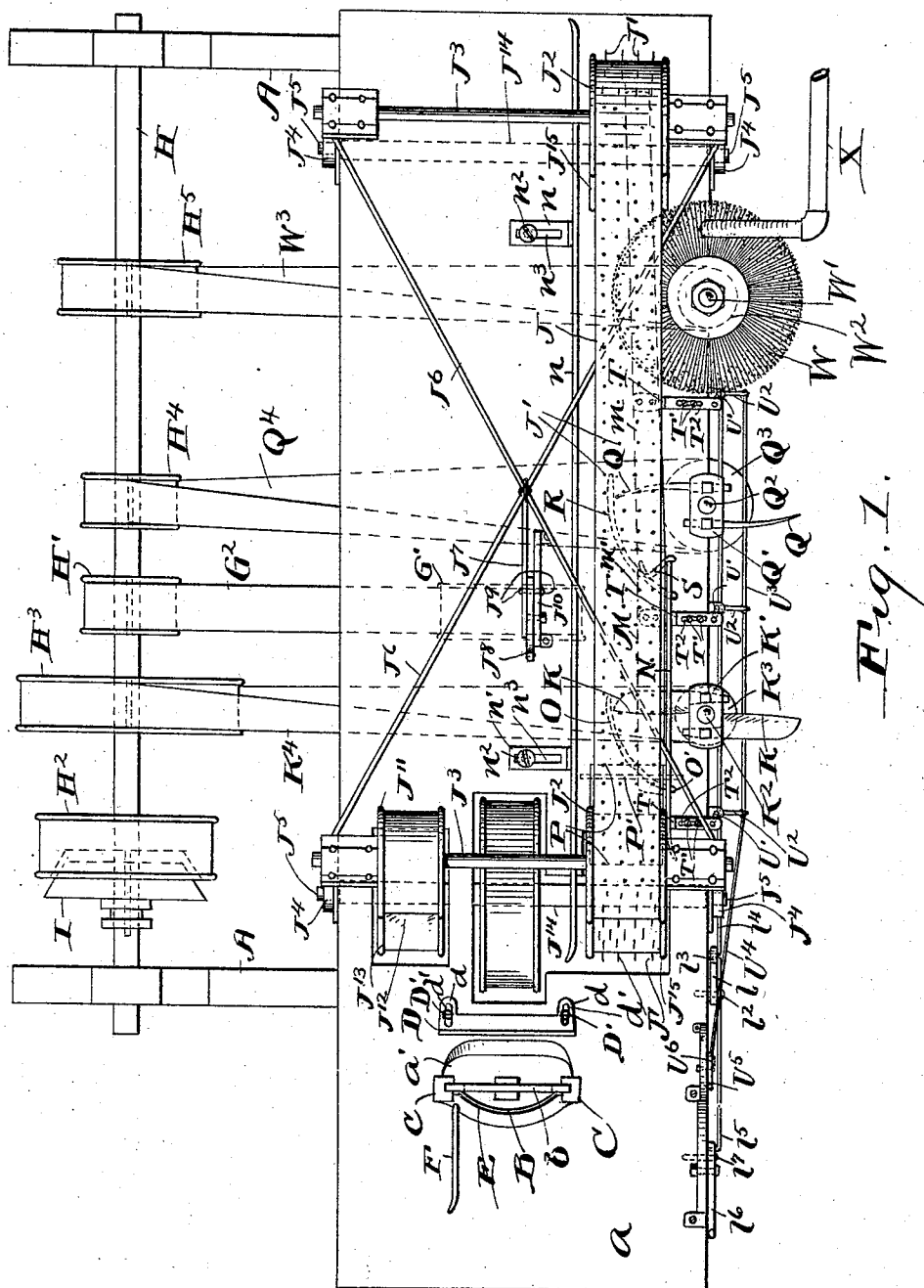


4 Sheets—Sheet 1.

No. 576,879.

Patented Feb. 9, 1897.



Witnesses:
E. B. Gilchrist
Olla E. Tildner

Inventor:
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his Attorneys

(No Model.)

4 Sheets—Sheet 2.

E. A. MURPHY.
FISH CLEANING MACHINE.

No. 576,879.

Patented Feb. 9, 1897.

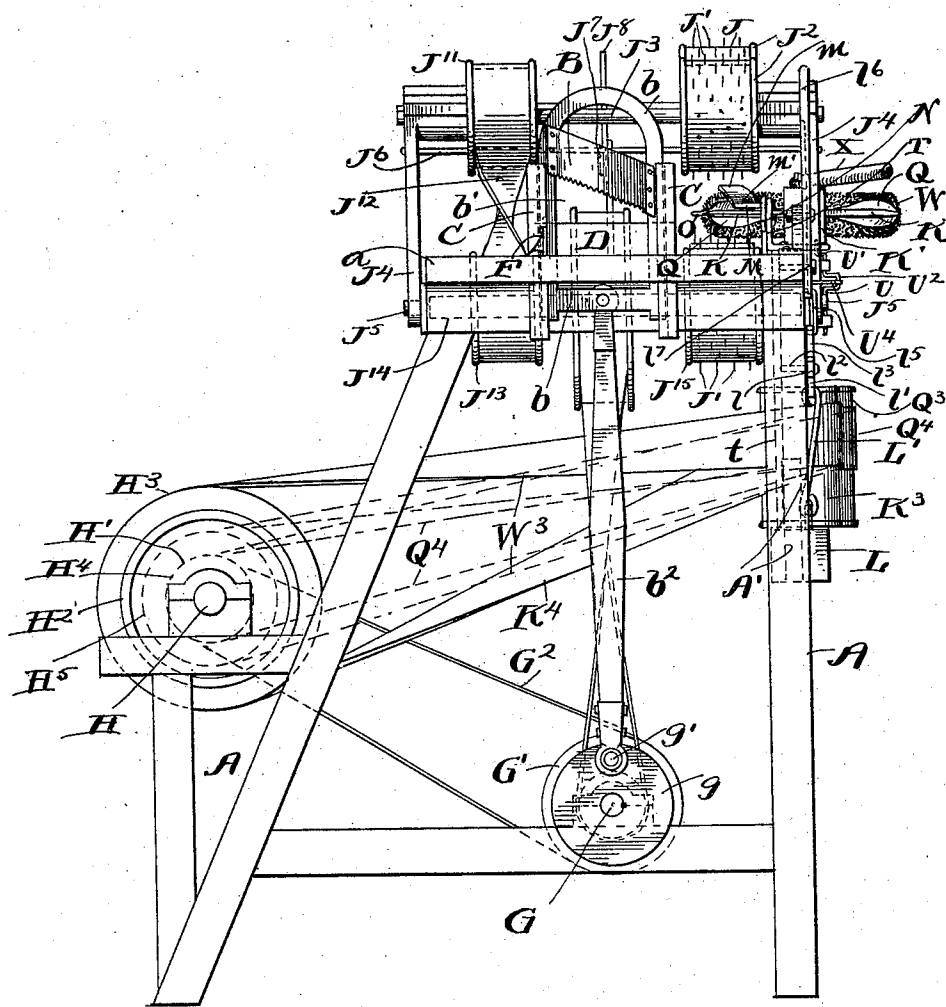


Fig. 2.

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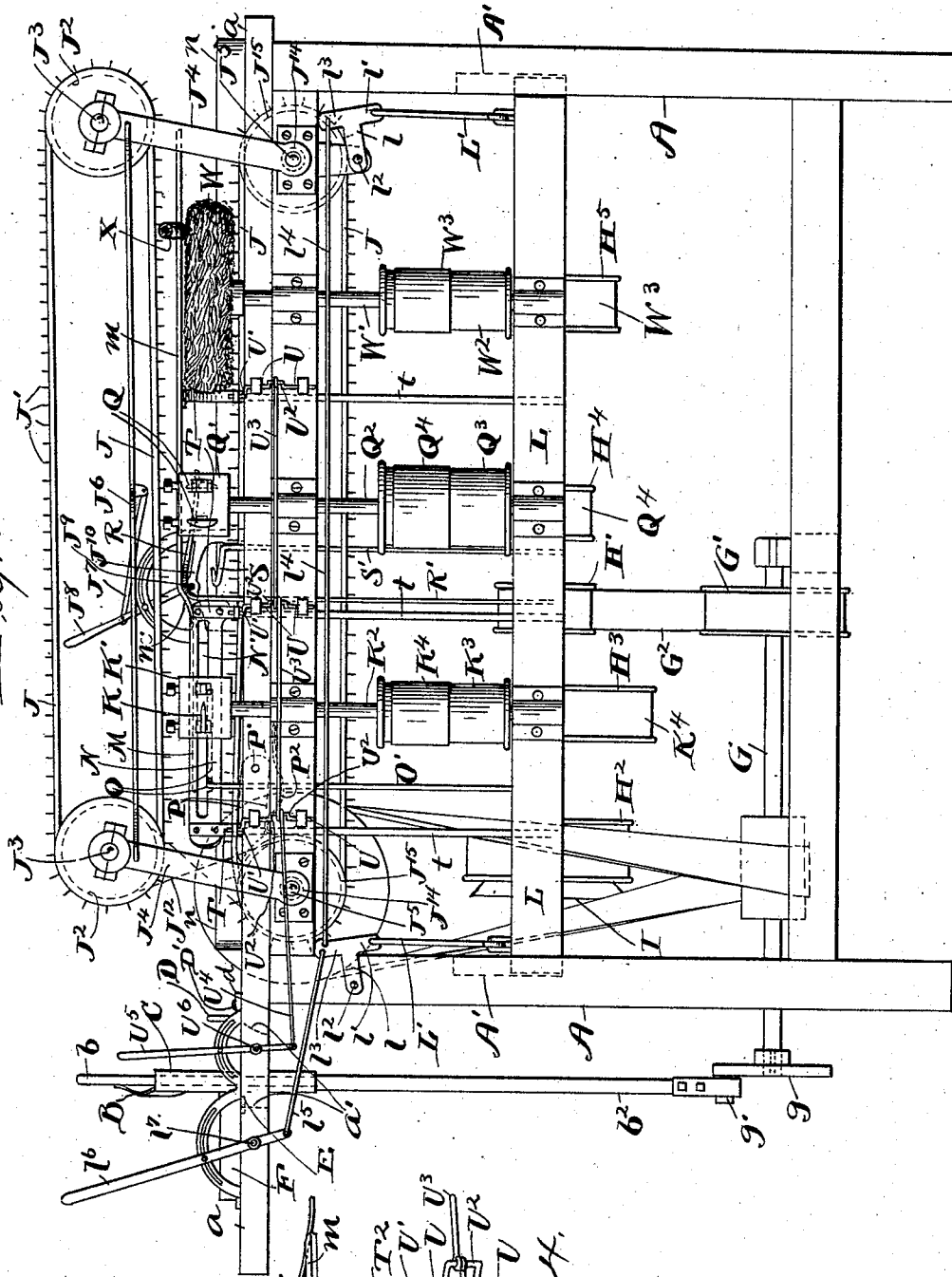
4 Sheets—Sheet 3.

E. A. MURPHY.
FISH CLEANING MACHINE.

No. 576,879.

Patented Feb. 9, 1897.

Fig. 3.



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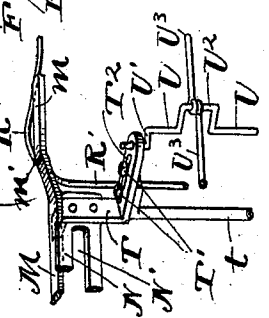


Fig. 4.

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(No Model.)

4 Sheets—Sheet 4.

E. A. MURPHY.
FISH CLEANING MACHINE.

No. 576,879.

Patented Feb. 9, 1897.

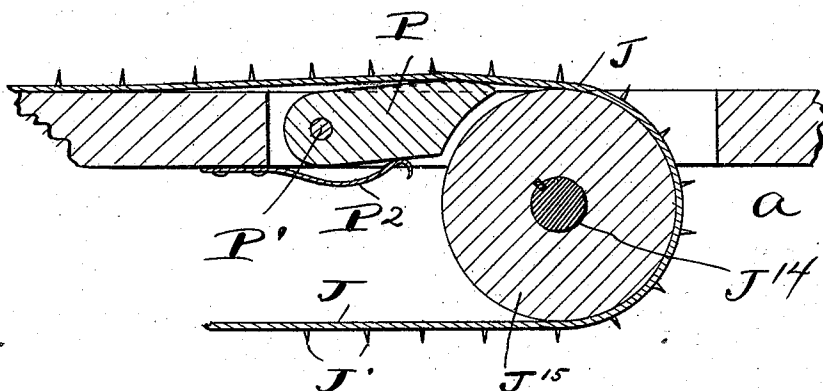


Fig. 5.

Witnesses:
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Ella E. Tiller.

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his Attorneys.

UNITED STATES PATENT OFFICE.

ELMER A. MURPHY, OF PAINESVILLE, OHIO.

FISH-CLEANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 576,879, dated February 9, 1897.

Application filed May 11, 1896. Serial No. 591,070. (No model.)

To all whom it may concern:

Be it known that I, ELMER A. MURPHY, of Painesville, Lake county, Ohio, have invented certain new and useful Improvements in Fish-Cleaning Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to a machine for beheading, splitting open, and internally cleaning fish, and more especially designed for fishermen's use; and it consists in certain features of construction and combinations of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan of a machine embodying my invention. Fig. 2 is a front end elevation of the machine. Fig. 3 is a right-hand side elevation of the machine. Fig. 4 is a view in perspective in detail. Fig. 5 is an enlarged side elevation in vertical section, showing the portion of table *a* that supports block *P* and spring *P*².

Referring to the drawings, *A* designates the stationary framework of my machine. Said framework, at the top, is provided with a horizontally-arranged stationary table *a*.

The fish to be split open and internally cleaned are beheaded upon the forward end of said table, and *B* designates a vertically-reciprocating knife or cutter arranged transversely of the machine at the forward end of the table. Knife *B* has its cutting edge at the bottom and is consequently arranged to cut downwardly. The knife is rigidly secured in any approved manner to an upright frame or carriage *b*, as shown in Fig. 2, and frame or carriage *b* has an opening *b'* therethrough, next below the cutting edge of the knife, for the reception of the fish that is to be beheaded, and said carriage is adapted to reciprocate vertically and engages two stationary slideways or guides *C C*, provided at opposite ends, respectively, of the knife. (See Figs. 1 and 2.)

Table *a*, between guides *C C*, has an opening *a'* therethrough, and the heads of the fish are discharged downwardly through said opening. Hole *a'* is wide enough transversely of the machine and extends far enough rear-

wardly of the point at which the beheading operation is performed to accommodate the discharge therethrough of the heads of the largest size of fish for which the machine is designed, and table *a*, at the rear of opening *a'*, is provided with an upright plate *D*, that is arranged transversely of and is suitably secured to the table. Plate *D* not only constitutes a stop for arresting the inward movement of the fish, fed by hand or otherwise, through opening *b'* in the reciprocating knife-carriage, but also forms a gage whereby the length of the portion cut from the fish's head end is regulated, and plate or gage *D* is consequently preferably adjustable lengthwise of the machine to accommodate different lengths of fish-heads. For instance, a pickerel has a longer head than a white fish or herring, and hence the desirability of having gage *D* adjustable in the direction indicated is obvious. Said plate or gage, in order to render it adjustable in the direction indicated, is, at its lower end, provided with rearwardly-projecting ears or flanges *d*, secured to the top of table *a* by means of bolts or screws *D'*, that extend into the table through holes *d'*, formed in said flanges or ears, and said holes are elongated longitudinally of the table to accommodate the afore-said adjustment.

The forward wall of opening *a'* is arched, as shown in Fig. 1, to conform to the convex shape of the inner end of the fish's head, and a segmental blade *E* conforms to the shape of and is rigidly secured to said wall and coöperates with the reciprocating knife or cutter *B* in the beheading operation, and the reciprocating knife is of course also arched or bowed forwardly to conform to the curvature of stationary blade *E*. The reciprocating knife *B* is arranged to operate in a path just rearward of stationary blade *E*, and consequently the two blades operate like the two blades of shears. The reciprocating knife or blade *B* is arranged obliquely to the table and has its cutting edge serrated to facilitate the beheading operation, and a stationary bar or plate *F*, arranged longitudinally of the table forward of opening *a'* and adjacent to the upper end of the reciprocating knife's cutting edge, constitutes a guide for the fish in the latter's passage to the point at which

the severing operation takes place, and by virtue of its said arrangement adjacent to the upper end of the beheading-knife B affords a lateral bearing for the fish's body during the crowding of the fish in the beheading operation by said knife and by virtue of the latter's inclination against said guide-constituting plate or bar F.

The knife-carriage *b* (see Figs. 2 and 3) is operatively connected at the central portion of its lower end by means of a link or pitman *b*² with the wrist *g*' of a crank-wheel or crank *g*, that is operatively mounted upon a shaft G, arranged horizontally and longitudinally of and suitably supported from the machine's framework A. Motion is transmitted to shaft G from shaft H, that is arranged parallel with shaft G and suitably supported from the machine's framework at the left-hand side of the machine a suitable distance above shaft G, and the means establishing operative connection between shafts G and H consists, preferably, of a pulley G', operatively mounted upon shaft G, a pulley H', operatively mounted upon shaft H, and a belt G², operatively connecting said pulleys with each other. Shaft H is preferably provided with a driving-pulley H², that is loosely mounted upon the shaft, and a clutch I, operated by any suitable mechanism, (not shown,) is employed for establishing operative connection between said pulley and shaft, so that the attendant can drive the shaft at will.

The fish to be split and internally cleaned, after it has been decapitated in the manner hereinbefore described, is fed by hand or otherwise between two suitably-supported and suitably-operated endless belts or conveyers J J, arranged one above the other and longitudinally of the machine. Belts J J are located a suitable distance apart to accommodate the reception of the fish between their opposing surfaces, and the outer surfaces of the belts or conveyers are provided with numerous suitably-arranged teeth J', adapted to bite the scale-bearing surfaces of the fish and feed the fish rearwardly during the splitting and subsequent operations.

The upper belt leads over two pulleys J² J², arranged transversely of the machine a suitable distance apart. Each pulley J² is operatively mounted upon a shaft J³, that is supported from the upper ends of standards or uprights J⁴, horizontally pivoted at their lower ends at J⁵ to the stationary framework A of the machine, and the standards instrumental in supporting one of the pulley-shafts are connected by means of diagonally-arranged and crossed rods A⁶ with the standards that support the other pulley-shaft, and the two crossed rods J⁶ J⁶ at the point at which they cross each other are operatively connected by means of a link J⁷ with a vertically and forwardly and rearwardly tilting hand-lever J⁸, that is horizontally fulcrumed at its lower end at J⁹ to an upright plate or bracket J¹⁰, suitably secured to table *a*. Upon

tilting said lever forwardly to actuate standards J⁴ into a perpendicular position the upper belt will be separated farthest from the lower belt and accommodate the thickest fish species upon which the machine is capable of operating, and the lever is tilted rearwardly in order to tilt standards J⁴ rearwardly, and thereby reduce the distance apart of the two belts, as required in placing the machine in condition for operating upon a thinner fish species. Any well-known means for securing lever J⁸ in the desired adjustment is of course provided.

The two belts are of course driven in opposite directions, respectively, and in the direction required to feed the fish rearwardly between them from their forward extremities. A pulley J¹¹ is operatively mounted upon the forward shaft J² and is operatively connected by means of a crossed belt J¹² with a pulley J¹³, that is operatively mounted upon the suitably-supported shaft J¹⁴, upon which one of the pulleys J¹³, over which the lower belt leads, is operatively mounted.

Any suitable number of revolving knives K are arranged in the same horizontal plane a suitable distance from the forward extremities of the aforesaid feeding-belts. Said knives are suitably secured in common to a block or head K', that is operatively mounted upon an upright shaft K², suitably supported from a bar L, arranged horizontally and longitudinally of the machine a suitable distance below the table and adjustable vertically for the purpose hereinafter made more apparent.

The fish to be operated upon is fed lengthwise between the belts with its head foremost and its backbone arranged to be split in half longitudinally by the aforesaid rotary knives, and as the knife-head, in the case illustrated, is arranged at the right-hand side of the belts the fish to be operated upon is fed with its back presented to the right. The knife-head is preferably provided with two knives or cutters arranged at opposite sides, respectively, of the head and arranged to cut forwardly or in the direction opposite to the direction of movement of the fish operated upon, and the knife-head is of course driven in the direction required to revolve the knives forwardly through the rearwardly-moving fish, and the knives are furthermore arranged centrally between the two belts, so as to cut the fish's back centrally, and the knives extend so far inwardly between the two belts to enable them to cut the fish's back through and through without cutting the fish's belly. A pulley K³ is operatively mounted upon shaft K² and operatively connected by a cross-belt K⁴ with a pulley H³, that is operatively mounted upon shaft H.

A suitably-supported yielding bar M, arranged horizontally between and longitudinally of the right-hand sides of the two feeding-belts just above the path of the knives, lifts the upper portion of the body of the split fish away from the fish's inwards, and an up-

right plate or bar N is arranged at the right-hand side and longitudinally of the fish's path and extends from near the forward extremities of the belts rearwardly a suitable distance, and not only forms a lateral guide for the fish in the latter's rearward movement, but also prevents a displacement of the fish in the direction of the fish's back during the splitting operation. Another bar *n*, arranged longitudinally of the machine at the left-hand side of the fish's path and forming a guide for the fish's belly during the latter's movement through the machine, prevents displacement of the fish in the direction of the fish's belly during the splitting and subsequent operations. The sweep of knives K extends through plate or bar N, and the latter is slotted, as at N', (see Fig. 3,) to accommodate the operation of said knives.

A finger-forming piece O, preferably of wire, is formed upon the upper end of a rod O', extending upwardly from and rigidly secured to slide L. Finger O is located adjacent to or in suitable proximity to the forward extremity of and just below the sweep of the splitting-knives and extends rearwardly and inwardly a suitable distance into the space between the two belts and beyond the inner extremity of the knives' sweep, and is arranged to bear against the inner surface of the fish's belly during the splitting operation and prevent the belly from being split by the knives and drawn or pulled by the latter toward the fish's back.

The thickness of a fish gradually decreases toward the fish's tail, and in order to split the tail portion of the fish centrally and in line with the remaining portion of the fish a spring-block P (see Fig. 3) bears against the under side of and elevates the lower belt's rearwardly-moving portion below the splitting-knives' sweep, and thereby causes said portion of the belt to incline upwardly below said sweep and elevate the central portion of the tail end of the fish into line with the path of the splitting-knives. Block P is pivoted at its rear end at P' to the table, and a suitably-supported spring P² bears against the under side of the block. The table is of course cut away where necessary to accommodate the location and operation of block P and other members of the machine. The splitting-knives are located centrally, as already indicated, between the two feeding-belts and should be elevated or lowered according as the upper belt is adjusted from or toward the lower belt, and this adjustment of the splitting-knives vertically is accommodated by carrying the knife-supporting shaft by the vertically-adjustable bar L, that, at its ends, engages slideways A', (shown in dotted lines, Fig. 3,) and formed in the forward and rear ends of the stationary framework of the machine.

The slide-constituting bar L is operatively connected by means of two links L' with the depending arms l' of vertically-tilting levers l,

that extend forwardly and are fulcrumed at their forward ends at l² to the aforesaid framework and have upwardly-projecting arms l³, 70 operatively connected with each other by means of a link or rod l⁴, and the upper arm of the forward lever l is operatively connected, by means of a link l⁵, with the lower end of a vertically-tilting hand-lever l⁶, fulcrumed horizontally at l⁷ to table a. By this construction it will be observed that slide L and the members supported thereby are elevated or lowered according as lever l⁶ is tilted in the one direction or the other. Any well-known means is of course employed for securing said hand-lever in the desired adjustment. It follows also that bar or guide N, the dividing-bar M, and finger O should be readjusted vertically in accordance with 85 any vertical readjustment of the splitting-knives and the upper feeding-belt, and consequently all of said members M N O are suitably supported from slide L, so that they are also elevated or lowered according as said slide is raised or lowered and are in the position required relative to the splitting-knives in any one of the adjustments of said knives.

The upper side of the fish operated upon in the fish's movement rearwardly passes from the dividing plate or bar M up an incline m', 95 formed upon the forward end of a bar m, (see Fig. 3,) that forms, preferably, an extension of bar M and is arranged approximately parallel with the feeding-belts and between the right-hand sides of the belts and far enough above the lower belt to accommodate the operation of the rotary blades instrumental in removing the fish's inwards and the brush employed in finishing the cleaning 105 operation. Incline m' is formed, preferably, by bending the forward end of bar m downwardly. Blades Q, that are instrumental in removing the fish's inwards, have a horizontal sweep rearward of incline m' and below bar m, and the block or head Q', that bears said blades, is operatively mounted upon the upper end of an upright shaft Q², suitably supported from slide L. A pulley Q³, operatively mounted upon said shaft Q², is operatively 115 connected by means of a crossed belt Q⁴ (see Fig. 1) with a pulley H⁴, operatively mounted upon shaft H. Block or head Q' is provided, preferably, with two blades Q Q, arranged at opposite sides, respectively, of the head, and said blades, by said arrangement of the means instrumental in operatively connecting them with shaft H, are driven in the direction required to revolve them forwardly through the rearwardly-moving fish and remove the 125 fish's inwards and discharge the inwards from the split back of the fish, and block or head Q' is arranged such a distance rearward of incline m' that the portion of the fish's body above the fish's inwards shall have been elevated the distance required preparatory to the operation upon said inwards by blades Q. A finger-forming member R is suitably arranged outside of the sweep of blades Q and

extends inwardly far enough into the space between the two belts and beyond the inner extremity of said sweep to bear against the inner surface of the fish's belly and prevent said blades during their operation from pulling or displacing the fish's belly. Finger R is formed, preferably, upon the upper end of a wire rod R', extending upwardly from and rigid with slide L, as shown in Fig. 3.

A forwardly-bowed and hook-shaped finger S is arranged to extend into the fish next below the fish's inwards, below the sweep of blades Q, and somewhat bear the lower side of the fish downwardly against the lower feeding-belt and effectually prevent any rearward displacement of the fish by said blades Q during the latter's operation. Finger S is preferably formed upon the upper end of a wire rod S', extending upwardly from and suitably secured to slide L. Bar *m* is also supported from said slide L, and hence it will be observed that all the members participating directly or indirectly in the removal of the fish's inwards are adjustable vertically with slide L, and therefore can be adjusted to correspond with the vertical adjustment of the upper feeding-belt and rotary knives and blades. Bars N M *m* are preferably secured to the upright members of any suitable number of angle-plates or brackets T. (See Figs. 1, 3, and 4.) Brackets T are arranged at the right-hand sides of the feeding-belts and have their horizontal members extending outwardly from and laterally of the fish's path and secured, by means of screws T', to the upper ends of upright rods or posts *t*, that extend upwardly from and are suitably secured to slide L. The hole or holes T² in the horizontal member of each angle-plate or bracket T, through which the securing-screws extend, are elongated in the direction required to render the bracket or plate and members supported thereby adjustable laterally. Bar *n* is adjustable laterally also and is borne by angle-plates or brackets *n'*, secured to table *a* by screws *n*², and the brackets' holes *n*³, through which the screws *n*² extend, are elongated in the direction required to render said bar or guide *n* adjustable in the direction indicated.

The fish of some fish species, for instance, the white fish, are much wider than the fish of other fish species, such, for instance, as the pickerel, and the desirability of having members M *m* N *n* adjustable laterally of the machine to accommodate different sizes of fish (referring to the latter's width) is therefore obvious.

In order to render members M, *m*, and N adjustable laterally simultaneously a corresponding distance, I operatively connect the horizontal members of brackets T with the cranks U' of suitably-supported upright crank-shafts U, (see Fig. 3,) that have other cranks U² operatively connected together by means of links U³, and the crank U² of the forward crank-shaft is operatively connected,

by means of a link U⁴, with the lower end of a vertically-tilting hand-lever U⁵, fulcrumed horizontally at U⁶ to table *a*, and the arrangement of parts is such that the aforesaid angle-plates or brackets upon loosening their securing-screws are simultaneously adjusted laterally in the one direction or the other, according as the aforesaid hand-lever is tilted in the one or the other direction, and said plates or brackets are again secured in the desired adjustment by tightening the screws.

Of course the upper feeding-belt should incline upwardly toward its rear extremity to accommodate the location of the upper portion of the fish after said portion has been elevated onto the dividing-bar *m*.

It will also be observed that a rotating brush W, that has a vertical axis, is arranged a suitable distance rearwardly of the inwards-removing blades and extends inwardly between the lower feeding-belt and dividing-bar *m* in position to engage and brush the fish internally. A suitably-arranged and suitably-supported water-supply pipe X extends over and discharges onto the brush. The brush is operatively mounted upon the upper end of an upright shaft W', that is carried by slide L. A pulley W² is operatively mounted upon the brush-bearing shaft and is operatively connected, by means of a crossed belt W³, with a pulley H⁵, operatively mounted upon shaft H. By this arrangement of parts the brush is rotated forwardly through the rearwardly-moving fish and finishes the fish's internal cleaning.

What I claim is—

1. In a machine of the character indicated, the combination of two toothed endless belts J J arranged one above the other and longitudinally of the machine; means for driving said belts in opposite directions, respectively; guides N *n* arranged at opposite sides, respectively, of the space between the belts, and revolving splitting-knives K arranged a suitable distance from the receiving extremities of the belts and having a horizontal sweep extending through one of the aforesaid guides centrally between the aforesaid belts, and the guide through which said knives' sweep extends being slotted to accommodate the location and operation of the knives, substantially as and for the purpose set forth.

2. In a machine of the character indicated, the combination of two toothed feeding-belts J J arranged one above the other and longitudinally of the machine; laterally-adjustable guides N *n* arranged at opposite sides, respectively, of the space between the belts, and revolving splitting-knives K arranged a suitable distance from the receiving extremities of the belts and having a horizontal sweep extending through one of the aforesaid guides and centrally between the aforesaid belts, and the guides through which said knives' sweep extends being slotted to accommodate the location and operation of the knives, substantially as and for the purpose set forth.

3. In a machine of the character indicated, the combination of two toothed endless feeding-belts arranged one above the other and longitudinally of the machine, and the upper belt being adjustable toward and from the lower belt; guides arranged at opposite sides and longitudinally of the space between the belts and vertically-adjustable revolving splitting-knives K having a horizontal sweep extending into the aforesaid space centrally between the belts, substantially as and for the purpose set forth.

4. In a machine of the character indicated, the combination of two toothed endless feeding-belts J J arranged one above the other and longitudinally of the machine; revolving splitting-knives K arranged a suitable distance from the receiving extremities of the belts and having a horizontal sweep extending centrally into the space between the belts; guides arranged at opposite sides and longitudinally of said space, and a suitably-supported finger O extending inwardly into said space just below the aforesaid sweep and beyond the latter's inner extremity, substantially as and for the purpose set forth.

5. In a machine of the character indicated, the combination of two toothed endless belts J J arranged one above the other and longitudinally of the machine; revolving splitting-knives K arranged a suitable distance from the receiving extremities of the belts and having a horizontal sweep extending centrally into the space between the belts; a suitably-supported finger O extending into said space just below the aforesaid sweep and beyond the latter's inner extremity, and a dividing-bar M arranged within and longitudinally of said space next above the aforesaid sweep, substantially as and for the purpose set forth.

6. The combination of two toothed belts arranged one above the other and longitudinally of the machine, and the upper belt being adjustable vertically; vertically-adjustable revolving splitting-knives K having a horizontal sweep extending a suitable distance into and centrally of the space between the two belts; the vertically-adjustable finger O arranged just below said sweep and extending into the aforesaid space and somewhat beyond the inner extremity of said sweep, and the vertically-adjustable dividing-bar M arranged within and longitudinally of the aforesaid space next above the aforesaid sweep, substantially as and for the purpose set forth.

7. In a machine of the character indicated, the combination of two toothed endless belts arranged one above the other and longitudinally of the machine and the upper belt being adjustable toward and from the lower belt; a vertically-adjustable bar or slide L a suitable distance below the lower belt; splitting-knives K arranged a suitable distance rearward of the receiving extremities of the belts and having a horizontal sweep extending centrally into the space between the belts and suitably supported from the aforesaid

slide; the finger O arranged just below said sweep and supported from the aforesaid slide and extending into the aforesaid space beyond the aforesaid sweep, and the dividing-bar M arranged within and longitudinally of the aforesaid space and next above the sweep of the knives and supported from the aforesaid slide, substantially as and for the purpose set forth.

8. In a machine of the character indicated, the combination of two toothed endless belts arranged the one above the other and longitudinally of the machine; revolving splitting-knives suitably arranged, in suitable proximity to the receiving extremities of the belts, for splitting the fish fed rearwardly by and between said belts; revolving blades a suitable distance rearward of the splitting-knives and arranged to enter the split fish and remove the latter's inwards; means for lifting the side of the fish's body above the latter's inwards preparatory to the operation of said blades upon the inwards; a brush rearward of said blades and arranged to brush the fish internally; means for guiding and preventing displacement of the fish during the splitting and cleaning operations, and means for simultaneously effecting an equal vertical adjustment of the aforesaid brush, blades and knives, substantially as and for the purpose set forth.

9. In a machine of the character indicated, the combination of two endless belts arranged the one above the other and longitudinally of the machine, and the upper belt being adjustable vertically and inclining upwardly and rearwardly; revolving splitting-knives suitably arranged, in suitable proximity to the receiving extremities of the belts, for splitting the fish fed rearwardly by and between said belts; revolving blades a suitable distance rearward of the splitting-knives and arranged to enter the split fish and remove the latter's inwards; means for lifting the upper portion of the fish's body from the fish's inwards preparatory to the operation of said blades upon the inwards; a brush rearward of said blades and arranged to brush the fish internally; means for guiding and preventing displacement of the fish during the splitting and cleaning operations, and the vertically-adjustable bar or slide L carrying the aforesaid knives, blades and brush, substantially as and for the purpose set forth.

10. In a machine of the character indicated, the combination of two endless belts arranged the one above the other and longitudinally of the machine; revolving blades arranged to enter a split fish fed rearwardly by and between said belts and remove the fish's inwards; means for lifting the upper portion of the fish's body from the fish's inwards preparatory to the operation of said blades upon the inwards, and the suitably-supported finger R extending into the space between the belts adjacent to and beyond the inner extremity of the sweep of the aforesaid blades, substantially as and for the purpose set forth.

11. In a machine of the character indicated, the combination of two toothed fish-feeding belts arranged one above the other and longitudinally of the machine; the blades Q arranged a suitable distance rearward of the receiving extremities of said belts, and having a horizontal sweep extending into the space between the belts; the brush W arranged a suitable distance rearward of said blades and extending into the aforesaid space; the bar *m* arranged within and longitudinally of the aforesaid space above the sweep of the brush and blades; the suitably-supported finger R extending into the aforesaid space adjacent to the sweep of the blades and beyond said sweep's inner extremity, and the finger S arranged to extend into said space below the sweep of the blades, substantially as and for the purpose set forth.

12. In a machine of the character indicated, the combination of two toothed endless fish-feeding belts arranged the one above the other and longitudinally of the machine; revolving splitting-knives suitably arranged, in suitable proximity to the receiving extremities of the belts, for splitting the fish fed rearwardly by and between said belts; revolving blades a suitable distance rearward of the splitting-knives and arranged to enter the split fish and remove the latter's inwards; a brush rearward of said blades and arranged to brush the fish internally; means for guiding and preventing displacement of the fish during the splitting and cleaning operations; the fish-dividing members *M m* and *m'*, and the fingers O, R, S, all arranged and operating substantially as shown, for the purpose specified.

13. In a machine of the character indicated, the combination of two toothed fish-feeding belts arranged the one above the other and longitudinally of the machine; revolving splitting-knives arranged, in suitable proximity to the receiving extremities of the belts, for splitting the fish fed rearwardly by and between said belts; revolving blades a suitable distance rearward of the splitting-knives and arranged to enter the split fish and remove the latter's inwards; a brush rearward

of said blades and arranged to brush the fish internally; means for guiding and preventing displacement of the fish during the splitting and cleaning operations, and the fish-dividing members *M, m'* and *m*; the fingers O, R, and S, and means for simultaneously effecting a corresponding vertical adjustment of said members *M, m, m', O, R, S*, and the aforesaid brush, blades and knives, substantially as and for the purpose set forth.

14. In a machine of the character indicated, the combination of two toothed fish-feeding belts arranged the one above the other and longitudinally of the machine; splitting-knives arranged, in suitable proximity to the receiving extremities of the belts, for splitting the fish fed rearwardly by and between said belts; revolving blades a suitable distance rearward of the splitting-knives and arranged to enter the fish and remove the latter's inwards; a brush rearward of said blades and arranged to brush the fish internally; the fish-dividing members *M* and *m*, and the guides *N, n*; the brackets supporting said members *M, m, N, n*, and adjustable laterally of the machine, and mechanism for effecting a corresponding adjustment of all of said brackets simultaneously, substantially as set forth.

15. In a machine of the character indicated, the combination with two toothed feeding belts arranged one above the other and longitudinally of the machine; the revolving splitting-knives *K* arranged in suitable proximity to the receiving extremities of the belts and having a horizontal sweep extending centrally into the space between the belts; of the spring-block *P* arranged to bear upwardly upon the feeding portion of the lower belt below the forward extremity of the knives' sweep, substantially as shown, for the purpose specified.

In testimony whereof I sign this specification, in the presence of two witnesses, this 5th day of May, 1896.

ELMER A. MURPHY.

Witnesses:

C. H. DORER,

ELLA E. TILDEN.