F. D. CLEVELAND.

AUTOMATIC MECHANISM FOR HANDLING, CUTTING, AND FLAKING FISH.

APPLICATION FILED DEC. 13, 1911.

1,036,568.

Patented Aug. 27, 1912.

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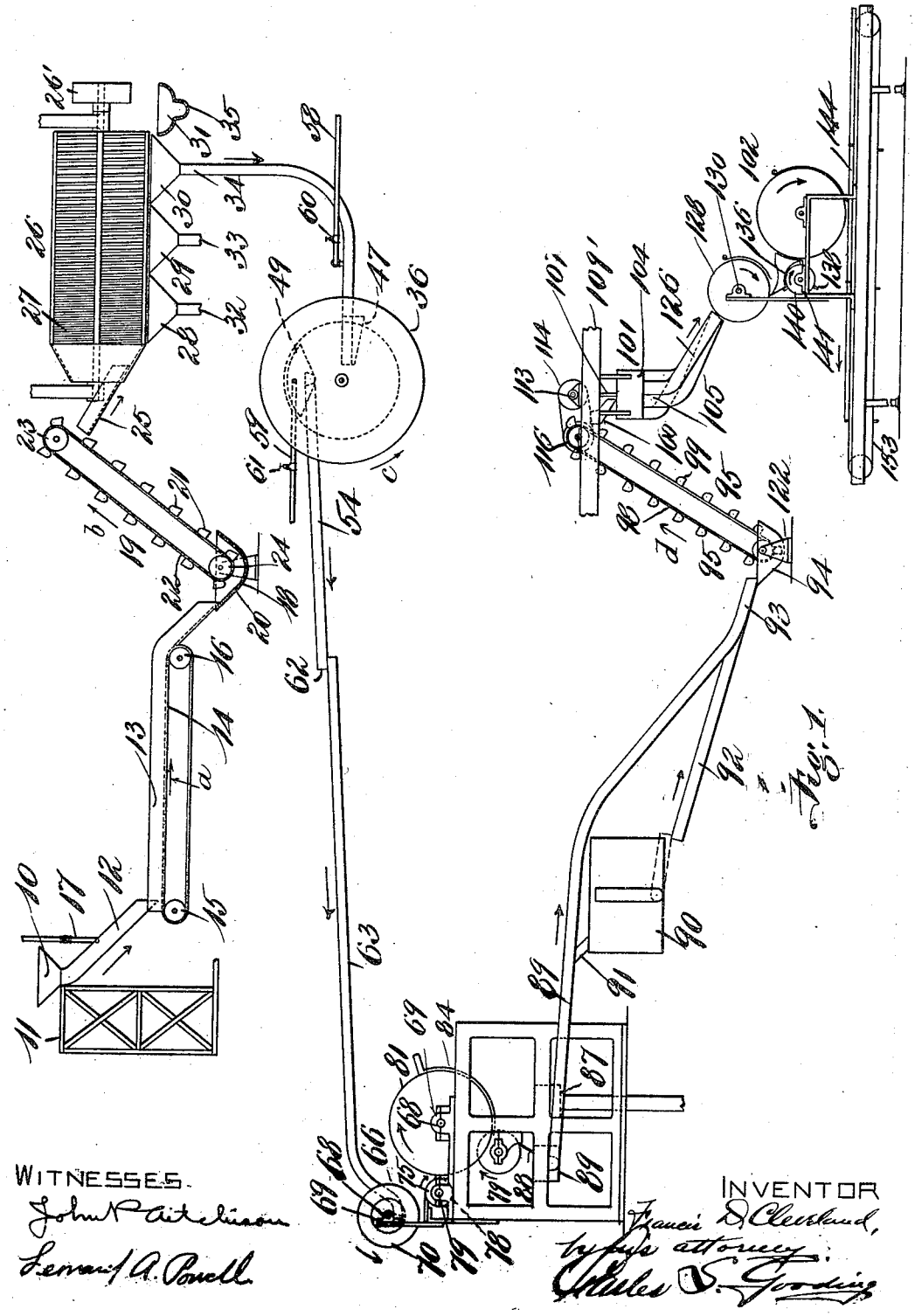


Fig. 1.

WITNESSES.

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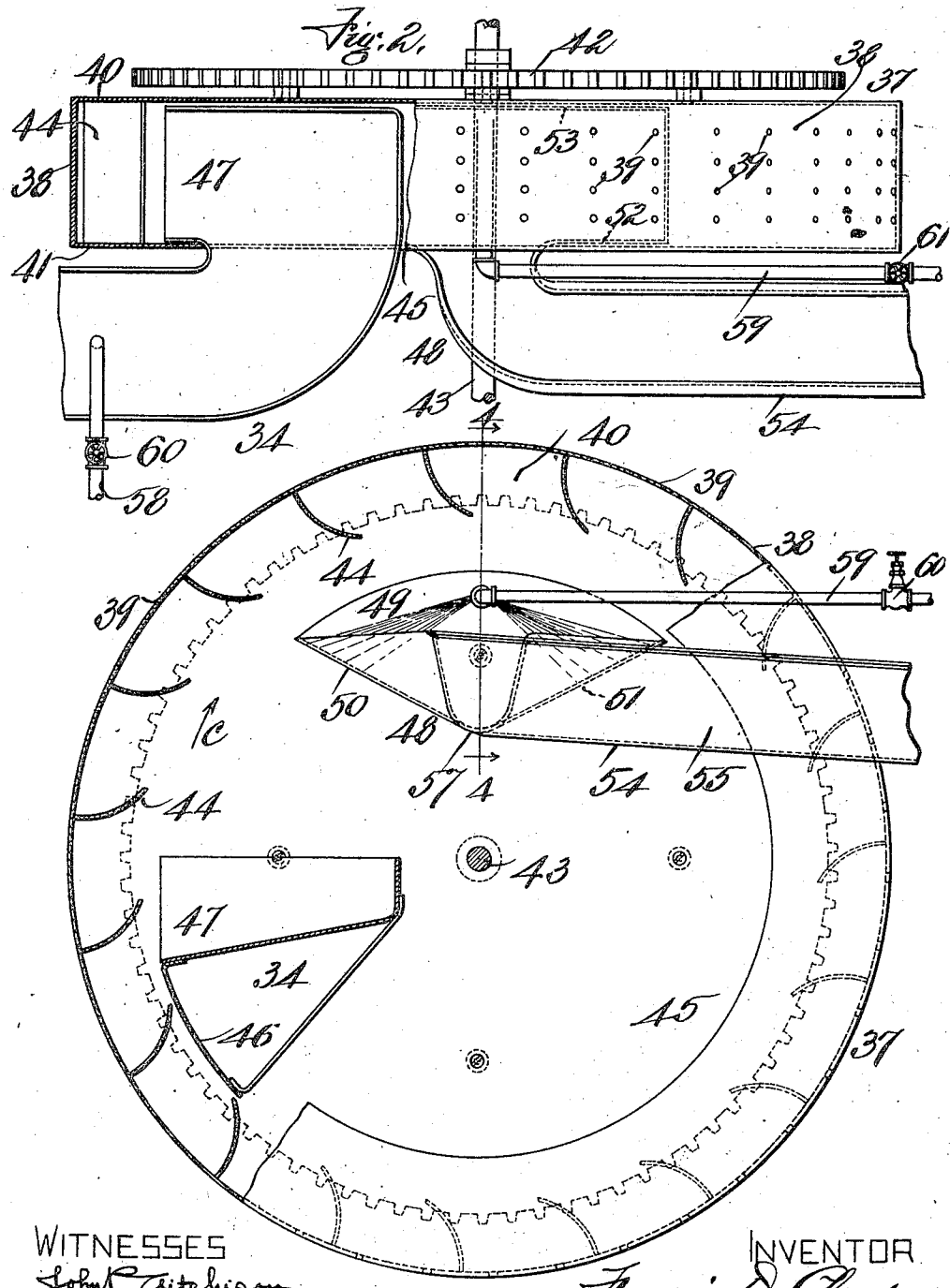
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7 SHEETS—SHEET 2.

Fig: 2.




WITNESSES

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Fig: 3

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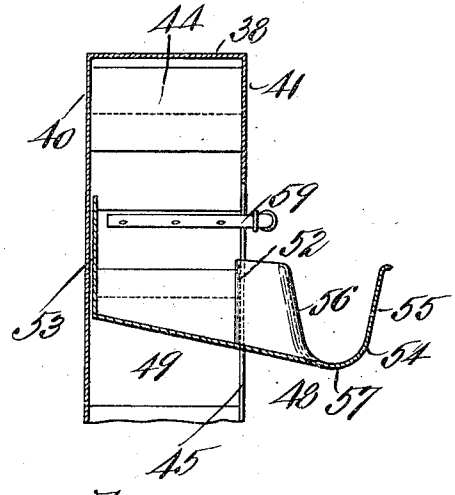



Fig. 4

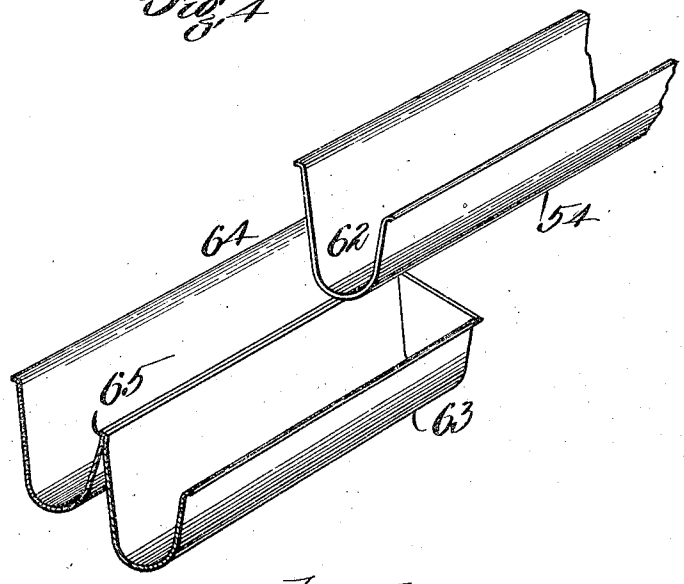



Fig. 5.

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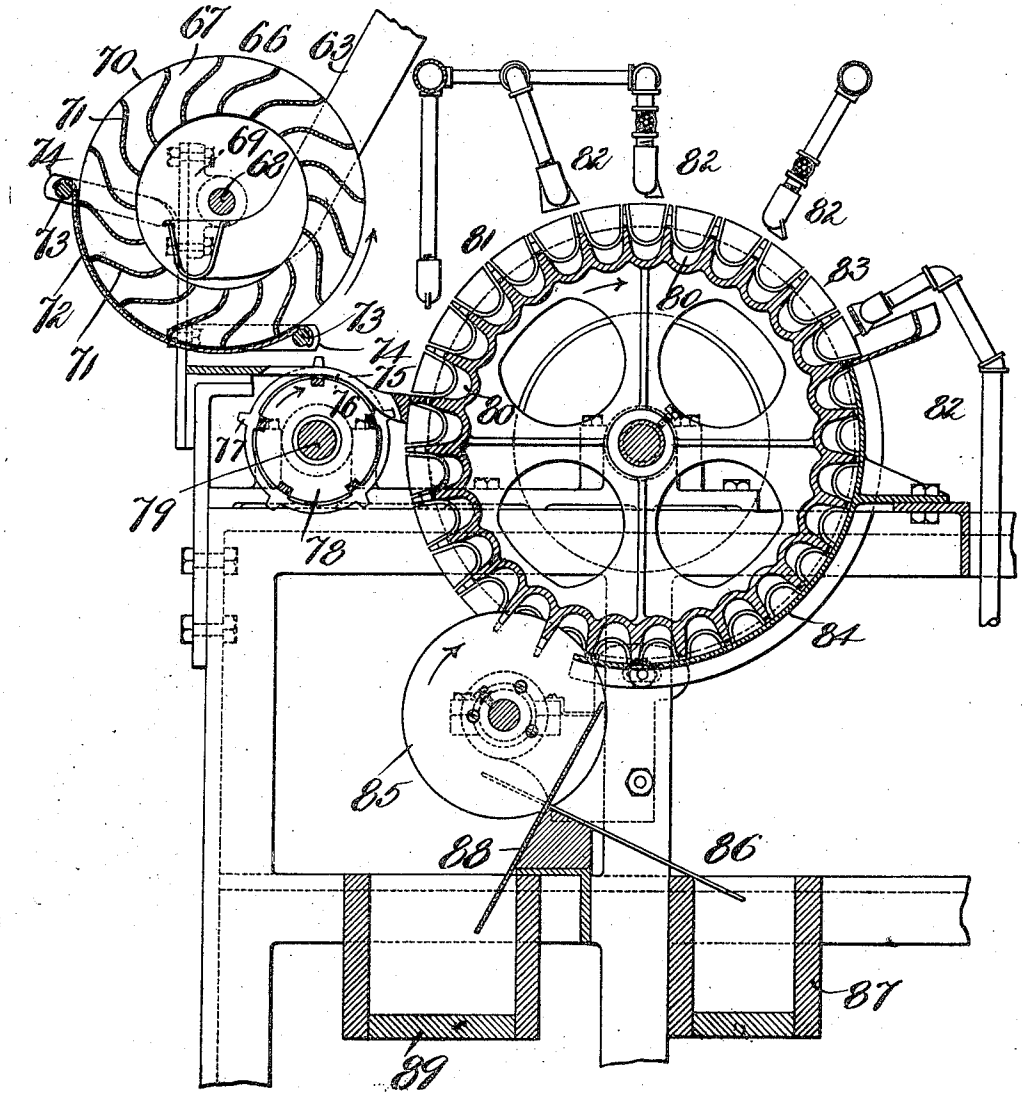



Fig. 6.

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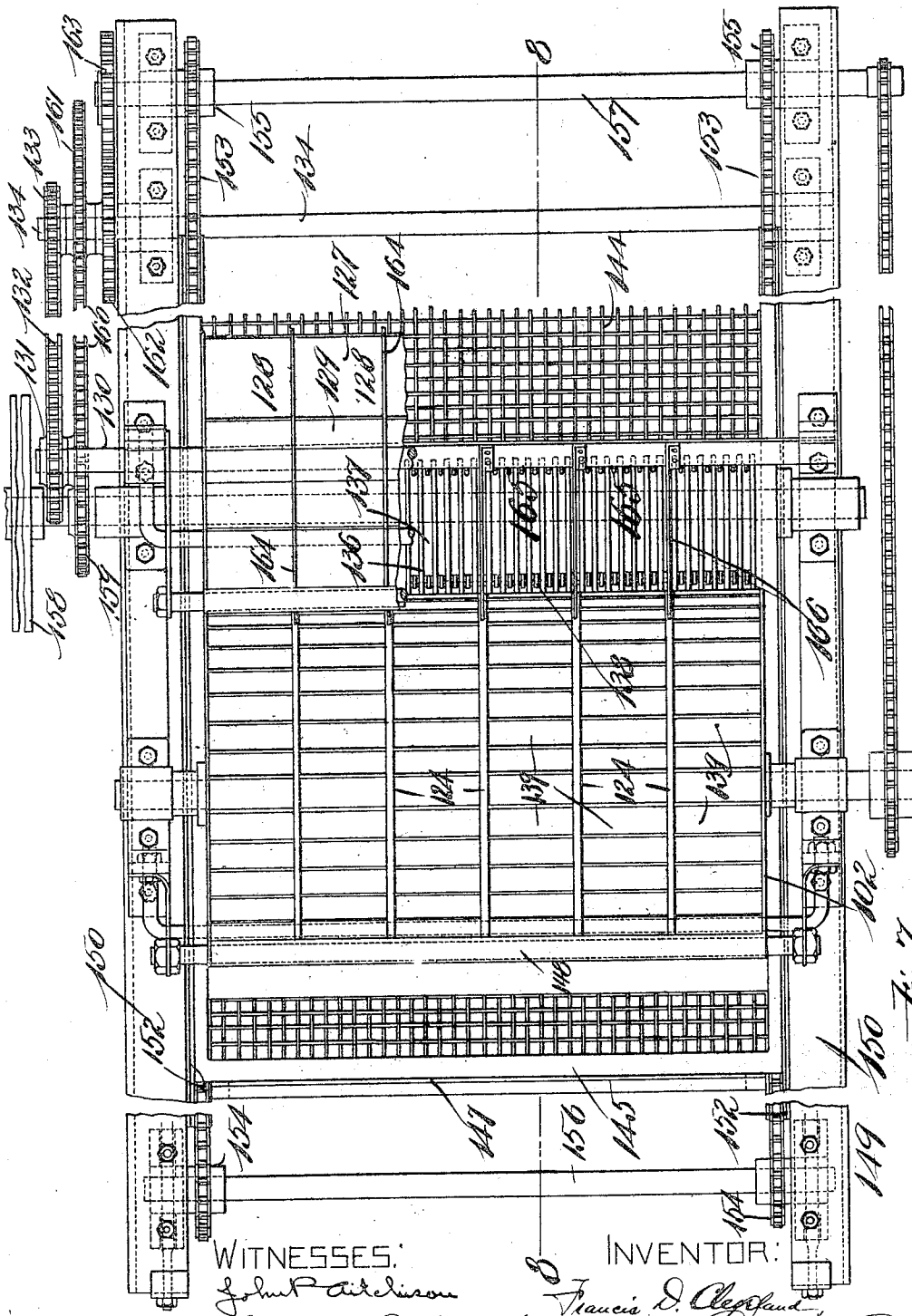


Fig. 7.

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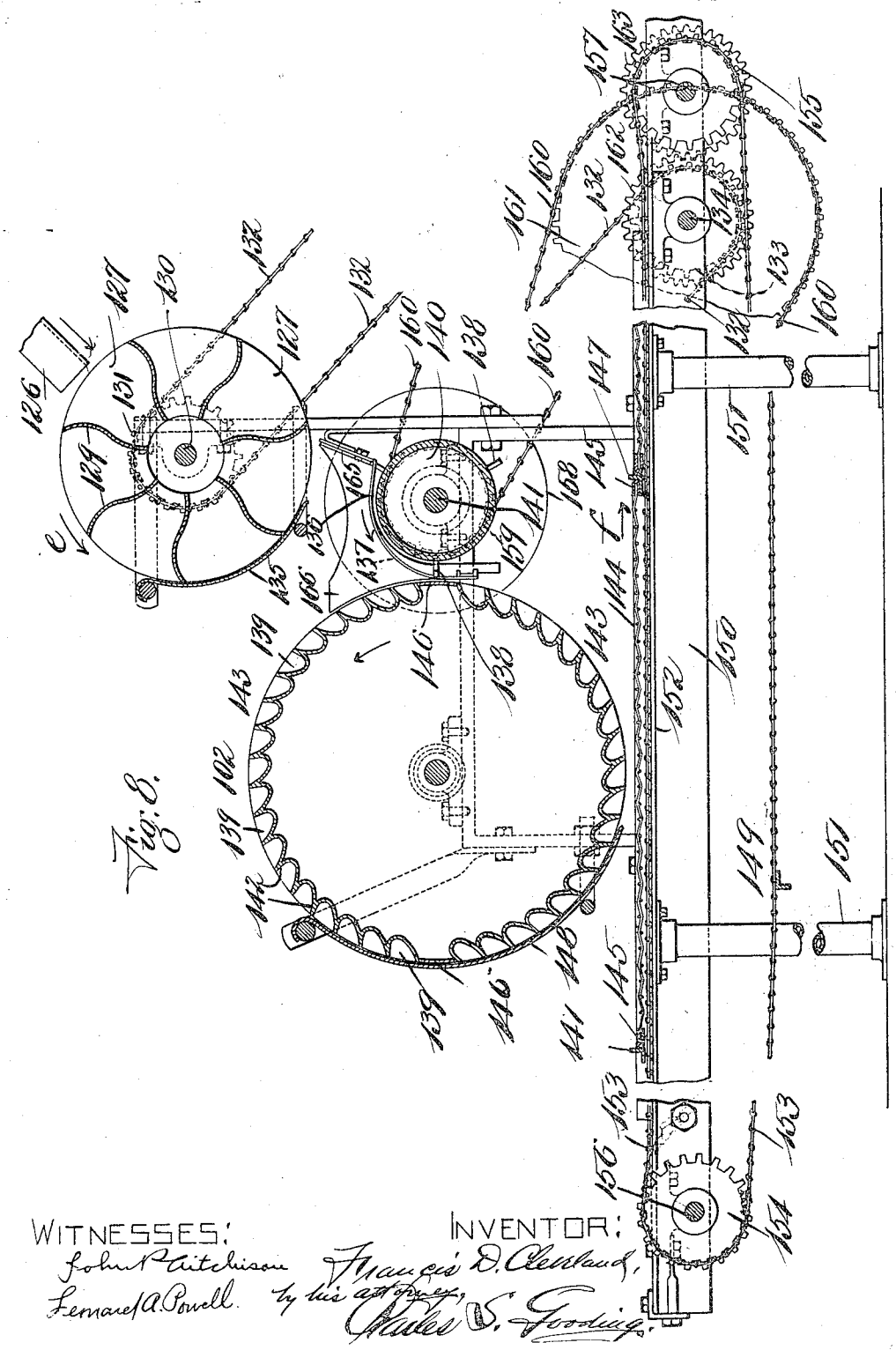


Fig. 8.

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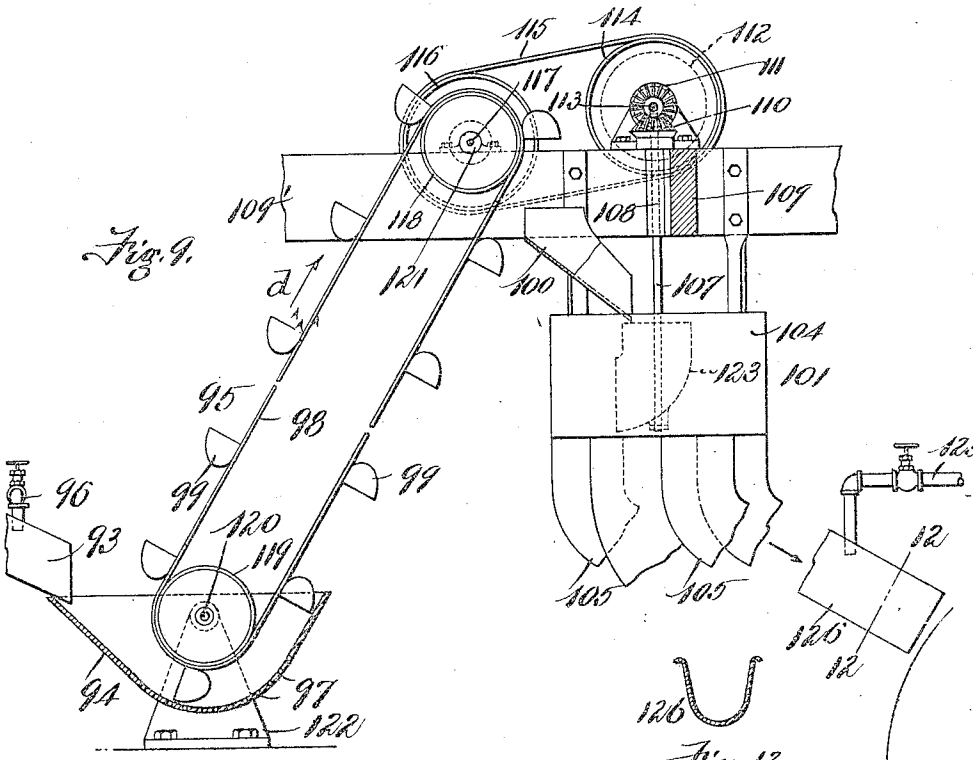



Fig. 9.




Fig. 12.

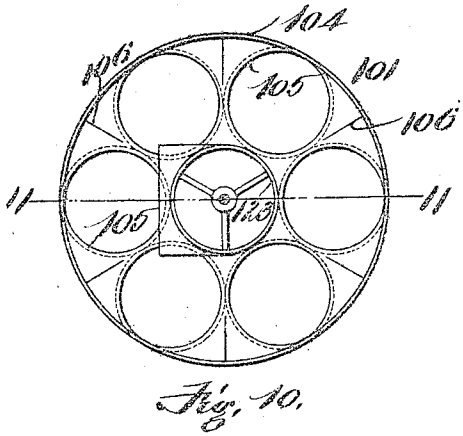



Fig. 10.

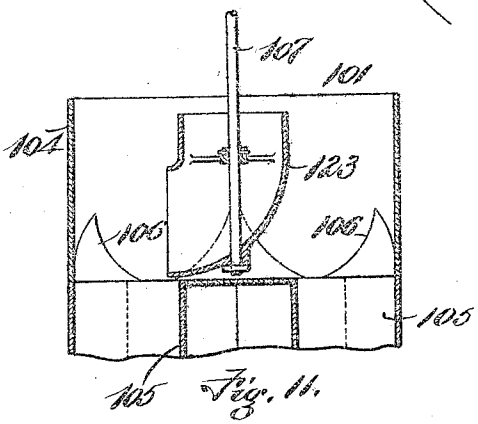



Fig. 11.

WITNESSES

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# UNITED STATES PATENT OFFICE.

FRANCIS D. CLEVELAND, OF WINCHESTER, MASSACHUSETTS.

## AUTOMATIC MECHANISM FOR HANDLING, CUTTING, AND FLAKING FISH.

1,036,568. Specification of Letters Patent. Patented Aug. 27, 1912.

Application filed December 13, 1911. Serial No. 665,436.

*To all whom it may concern:*

Be it known that I, FRANCIS D. CLEVELAND, a citizen of the United States, residing at Winchester, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Automatic Mechanism for Handling, Cutting, and Flaking Fish, of which the following is a specification.

This invention relates to improved mechanism for automatically handling, cutting and flaking fish, the object of the invention being to take fish, such as sardines, in large masses and dump them into a suitable receptacle. The mechanism hereinafter described will then subdivide the mass of fish dumped into said receptacle at uneven periods of time and of all sizes into fractional portions of said mass, these fractional portions being automatically carried to an assorting mechanism which will assort the fish according to size, from which they are automatically conducted to a segregator which subdivides the fractional portions hereinbefore set forth into other equal fractional portions and delivers them to certain guiding means, whereby they are finally conducted one by one and delivered to a cutting mechanism which severs the heads and tails of the fish. Said heads and tails are then conveyed to one receptacle, while the bodies are carried into brine tanks and from thence are carried to a segregator which separates the mass of fish again into fractional portions of said mass and delivers them to a separator, said separator delivering the fish to a plurality of pipes or conductors, whereby they are delivered to a segregator and are separated by said segregator into still other fractional portions, from which they are delivered one by one to a carrier with a series of pockets in its periphery, and this carrier lays them in a series of rows upon fish flakes which are automatically fed beneath said carrier to receive the fish. The fish flakes are then removed by an attendant and placed in racks to dry. This mechanism, from the start, where the fish are dumped into the receptacle, until the flakes are taken by an attendant provided therefor, is automatic in its action and requires no manual labor except as indicated, viz, an attendant to feed fish to the machine, an attendant to supply flakes to the machine and an attendant to take the fish away on the flakes.

The object of the invention is, then, to provide mechanism which will operate automatically to take a mass of fish of all sizes, subdivide said mass of fish into several lots, the fish in each of said lots being of approximately equal size, and after this subdivision to take said lots of fish to a plurality of cutting machines, each of the cutting machines adapted to cut the fish of one of said lots respectively.

The object of the invention is further to provide in addition to the combination of elements hereinbefore set forth, a segregator located in advance of the assorting mechanism, and further the object of the invention is to provide another segregator located between the assorting mechanism and each of the cutting mechanisms respectively.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings: Figure 1 is a general front elevation of my improved automatic mechanism for handling, cutting, and flaking fish, the same being shown somewhat in diagram. Fig. 2 is a plan view, partly broken away and shown in section, of one of the segregators. Fig. 3 is a front elevation of the same, also broken away, and shown in section. Fig. 4 is a sectional elevation taken on line 4—4 of Fig. 3. Fig. 5 is a perspective view illustrating the arrangement of chutes, whereby fish are subdivided from a mass into fractional portions thereof. Fig. 6 is a sectional elevation of that portion of the mechanism whereby heads and tails of fish are cut off. Fig. 7 is a plan view of that portion of the mechanism whereby fish are placed upon the flakes, the same being broken. Fig. 8 is a sectional elevation taken on line 8—8 of Fig. 7, the same being broken. Fig. 9 is a side elevation, partly in section broken away to save space, of a fish elevator and separator. Fig. 10 is a plan view of the separator illustrated in Fig. 9. Fig. 11

is a sectional elevation taken on line 11—11 of Fig. 10. Fig. 12 is a detail section taken on line 12—12 of Fig. 9.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 10 is a receptacle for fish into which the fish are poured in mass by an attendant from a platform 11. The fish are hoisted by suitable hoisting mechanism from a vessel in large buckets or cans and the attendant standing on the platform 11 dumps the fish into the receptacle 10. Said fish pass down an inclined chute 12 in large masses of all sizes and at unequal intervals of time into a conductor 13, the bottom of which is formed by an endless belt 14 driven by pulleys 15 and 16. Water is supplied to the chute 12 through suitable pipes 17.

The fish are carried along by the conveyer belt 14 in the direction of the arrow *a* and dumped into a boot 18 at the bottom of an elevator constituting a segregator 19. The boot 18 is perforated at 20, 20 to allow water, dirt, fish scales, et cetera to pass therethrough and the fish are pushed through the boot and washed therein by buckets 21, 21 which are attached to an endless conveyer belt 22 which is moved in the direction of the arrow *b* by pulleys 23, 24. The fish by this segregator 19 are thus divided into fractional portions of the original mass of fish delivered to the boot 18 by the buckets 21, 21 which pick up the fish in substantially equal amounts and carry the same upwardly in the direction of the arrow and dump the same into an inclined chute or conductor 25. It will be seen that the fish are dumped into this conductor in substantially equal quantities at equal intervals of time. The fish are now delivered by the chute 25 to an assorting mechanism 26 for the purpose of assorting the fish so as to deliver fish of different sizes to different cutting machines, it being essential to the best results to be obtained from a cutting machine that the fish should be delivered thereto in substantially equal sizes in equal quantities at equal intervals of time, for, if the fish are of unequal sizes when they come to the cutting machine, they will be either too large or too small to have the heads and tails properly cut by the cutters of said cutting machine. Moreover, it will be understood that if they are not delivered in equal quantities and at equal intervals of time, the cutting machine will either be running without any fish or will be overstocked so as to waste and spoil the fish.

The assorting mechanism 26 consists of a rotary drum 27 rotated by a pulley 26′; said drum 27 is made preferably of a pipe and formed as a helix with the spaces gradually increasing between the convolutions of the helix from the left to the right (Fig. 1). Beneath this hollow helical coil or drum are arranged a plurality of chutes 28, 29, 30 and 31. Thus the fish are subdivided into several lots, the fish in each of said lots being of approximately equal size and said lots of fish pass down the conductors 32, 33, 34 and 35 in unequal masses to a like number of segregators 36. As these segregators are all substantially alike, a description of one will suffice for all of the segregators used at this point in the mechanism. (See Figs. 2, 3 and 4.)

The segregator 36 consists of a hollow drum 37 comprising an outer rim 38 provided with perforations 39, 39, said rim having two flanges 40 and 41 projecting inwardly therefrom. The flange 40 has fastened thereto a gear 42 by means of which it may be rotated, said gear and drum being rotatably mounted upon a shaft 43. A series of buckets 44, 44 adapted to contain fish are arranged around the interior of the drum 37 adjacent to the outer rim 38. These buckets are preferably concavo-convex, the concave side being on the inner side of the bucket or that side in which the fish are deposited. Said buckets are arranged within the drum 37 and extend across the interior of said drum adjacent to the rim 38 from the flange 40 to the flange 41.

A chute 34 leads into the interior of the drum 37 through an annular opening 45, this chute terminating, as clearly shown in Figs. 2 and 3, adjacent to the inner edges of the buckets 44. A guard 46 extends downwardly from the delivery end 47 of the conductor 34. This guard 46 is preferably concentric with the drum 37 and is long enough to extend across the edges of two adjacent buckets.

The drum 37 is rotated in the direction of the arrow *c* and the fish are dumped from the buckets 44, 44 onto a chute 48. That portion 49 of said chute 48 located within the drum 37 and constituting the inlet of the chute 48 has inclined sides 50 and 51, as seen in Fig. 3, and vertical front and back plates 52 and 53, respectively, said inlet portion 49 of said chute 48 leading into the U-shaped portion 54 which is inclined at a slight angle downwardly and preferably has inclined sides 55 and 56 and a rounded bottom portion 57. The width of the chute at the rounded bottom portion 57 is less than the length of the shortest fish to be handled by said mechanism. The chutes 34 and 54 are both provided with water by means of suitable pipes 58 and 59, respectively, controlled by valves 60 and 61.

Adjacent to and beneath the outlet end 62 of the chute 54 are located a pair of U-shaped chutes 63 and 64, Fig. 5 said U-shaped chutes being divided one from the other by their adjacent sides which form

together a partition 65, said partition being substantially vertical and acting as a separator, whereby, as the fish pass out of the end 62 of the chute 54, they are separated into substantially equal portions, one of said portions then passing into the chute 63 and the other into the chute 64. The partition 65 being centrally located relatively to the chute 54, or in alinement with a vertical plane bisecting said last-named chute, there is an equal probability of the fish going into either of the chutes 63 or 64 and, as a matter of fact, it has been established by practice that the fish coming down the chute 54 are subdivided into substantially equal portions, one half going into the chute 63 and the other half into the chute 64.

It is evident that the chutes 63 and 64 may be subdivided in the same manner and any number of subdivided chutes may thus be eventually obtained leading to different cutting machines or to different receptacles on a cutting machine and in the present instance the chute 63 leads to a segregator 66 and delivers the fish in a direction longitudinally of the pockets 67 provided in said segregator and at the inner ends of said pockets. It will be understood that there are arranged side by side a plurality of these segregators 66 and that they deliver fish to a plurality of guides along which, in turn, the fish are carried by suitable mechanism, hereinafter described, to a plurality of rotary carriers having pockets in their peripheries, but as these parts are duplicates of each other, a description of one set of instrumentalities for washing, feeding and cutting the fish will be sufficient for all. (See Figs. 1 and 6). The segregator 66 is fastened to a shaft 68 and is rotated by suitable mechanism such as a pulley. The shaft 68 is journaled to rotate in bearings 69 fast to the frame of the machine. Said segregator consists of two side plates or flanges 70, 70 forming the ends of the pockets 67, 67, and said pockets are separated one from the other by radially disposed walls 71, 71 which are of ogee curvature in cross section. A shield 72 is supported upon stationary rods 73, 73 fast to brackets 74, 74 which, in turn, are fastened to the frame of the machine. A curved guide 75 is provided located beneath and adjacent to the lower end of the shield 72 and this guide has slots 76, 76 therein through which fingers 77 upon the periphery of a rotary feed member 78 project, said feed member being fastened to a shaft 79 to which a rotary motion is imparted by suitable mechanism (not shown in the drawings), such as a pulley.

The fish are pushed by the fingers 77 along the guide 75 into pockets 80 which are arranged in series on the periphery of a rotary carrier 81. A series of pipes 82 deliver water into the pockets at an angle thereto and serve to push the fish which are located in the pockets lengthwise thereof with their noses against the gages 83 at opposite ends of the pockets. A shield 84 is arranged adjacent to the periphery of the carrier 81 and as the fish are carried around by the rotary carrier they fall against this shield and finally are pushed by the partitions between the pockets up against a pair of rotary cutters 85, at which time the heads and tails are severed from the fish and pass onto two chutes 86 which convey them into a convenient receptacle 87. The bodies of the fish pass between the cutters and down a chute 88 into a conductor 89 and along said conductor and above brine tanks 90. If it is desired to salt the fish they are delivered by the conductor 89 into the brine tank through suitable openings which are closed by means of drop doors 91. After the fish have been salted sufficiently in the brine tanks they are delivered therefrom into a conductor 92. If, however, it is not desired to submit the fish to brine, they are carried by the conductor 89 downwardly to the conductor 93, both the conductors 89 and 92 merging together and emptying into the conductor 93, (Figs. 1 and 9).

The fish in mass pass down the conductor 93 into a receptacle known as a "boot" 94 for the elevator 95. The fish are floated down the inclined chute 93 in a stream of water supplied by suitable pipes 96 and this water enters the boot 94, together with the fish, and thoroughly washes said fish. The water passes out, together with the scales and dirt, through perforations 97 in the bottom of said boot.

The elevator 95 consists of an endless belt or chain 98 with buckets 99 attached thereto which scoop up the fish out of the boot 94 and, carrying them upwardly in the direction of the arrow *d*, dump said fish into a chute 100. It will be understood that the buckets 99 thus subdivide the mass of fish which enters the boot 94 into fractional parts thereof. These fractional parts of the original mass of fish which is delivered to the elevator by the conductor 93 are carried by the buckets 99 upwardly in the direction of the arrow *d* and are dumped at regular intervals and in substantially equal amounts into the chute 100 which guides the fish into a separator 101, the object of the separator being to subdivide the fractional portions of the original mass of fish which is carried by the buckets and dumped into the chute 100, as hereinbefore described, into other fractional portions in equal amounts, to be guided by a plurality of conductors 105 to mechanism which will feed the fish to each of the series of circumferential pockets on a rotary carrier 102, to be laid by said rotary

carrier upon fish flakes 144 as they are fed therebeneath by mechanism hereinafter described, (Figs. 7 to 12).

The separator 101 consists of a stationary cylindrical casing 104 having a plurality of outlet pipes 105, 105 (in this case six) broken away to save space in the drawings, these outlet pipes opening out of the bottom of the cylindrical casing 104 and being divided from each other by U-shaped guides 106 in the bottom of the casing 104. Concentric with the casing 104 is a shaft 107 journaled at its upper end in a bearing 108 fast to a supporting timber 109. A rotary motion is imparted to the shaft 107 by a bevel gear 110 fast thereto and meshing into another bevel gear 111 driven by a pulley 112. The pulley 112 is fast to a shaft 113 and said shaft has fastened to it another pulley 114 which drives a belt 115, whereby a pulley 116 fast to a shaft 117 is rotated. The shaft 117 has a pulley 118 fast thereto which drives the belt 98, said belt 98, in turn, driving a pulley 119 fast to a shaft 120. The shaft 117 is journaled in bearings 121 supported upon the beam 109' and the shaft 120 is journaled upon standards 122 fast to the floor.

To the lower end of the shaft 117 is fastened an elbow 123. The chute 100 delivers fish into the upper end of the elbow 123 and said elbow constitutes an inlet passage for the fish. The fish are delivered from the lower end of the elbow to the upper ends of the pipes 105, 105, said pipes constituting outlet passages from the casing. Thus the fish is subdivided, as hereinbefore described, into substantially equal fractional portions of the original mass of fish delivered by the elevator 95, and these fractional portions of the original mass of fish are delivered in equal time and substantially equal quantities to the separator 101 which then, by the rotation of the elbow 123, into which the fish are delivered, still further subdivides the fish in substantially equal quantities and delivers them to a plurality of conductors 105, 105. In this case the number of these guides is six, being the same number as the number of subdivisions into which the carrier 102 is divided longitudinally thereof—that is, said carrier is divided by partitions 124, 124 into six divisions.

The fish in each of the pipes 105, 105 pass down said pipes and, aided by streams of water delivered thereto by suitable pipes 125, pass into chutes 126, which are preferably U-shaped in cross section, and are delivered from said chutes 126 into pockets 127 in a rotary segregator 128. This segregator 128 has a series of pockets 127, 127 opening out of its periphery, the pockets having radially disposed walls 129 of ogee curvature separating one from the other. The segregator 128 is fastened to a shaft 130 journaled to rotate in bearings on the frame of the machine and has a sprocket gear 131 fast thereto and rotated by a chain 132, said chain 132 being actuated by a sprocket gear 133 fast to the shaft 134. The segregator 128 has a shield 135 extending partly around the periphery thereof and terminating near the bottom of said segregator, said segregator being rotated in the direction of the arrow *e* (Fig. 8).

The fish are delivered from the pockets 127 substantially one by one to a guide 136 which is slotted at 137 in order that fingers 138, 138 may pass through said slots and push the fish which rest thereon along the guide 136 and into the pockets 139 of the carrier 102. Immediately beneath the slotted portion of the guide 136 is a rotary feed member 140, said slotted portion of the guide being eccentric to said feed member. The rotary feed member 140 is fast to a shaft 141 and is rotated thereby.

The carrier 102 is provided with a plurality of pockets 139, 139 in its periphery, said pockets being preferably adapted to contain one fish only and being U-shaped in cross section, with their opposite sides 142, 142 inclined to the periphery of said carrier and in the direction of rotation of said carrier. Each of the pockets 139 extends transversely of the path of motion of the carrier and said pockets are arranged in a plurality of series, said series, in the present instance, extending around the periphery of said carrier in groups of two and being arranged side by side in groups of six. The length of one series of pockets 143 measured circumferentially of the carrier is substantially equal to the length of the reticulated central portion of one of the flakes 144 between the end frames 145, 145 thereof, and between the two circumferentially arranged series of pockets 143, 143 on the carrier 102 (see Fig. 8) and adjacent to the opposite ends of each of said series, respectively, are two spaces 146, 146 in the periphery of the carrier without pockets and which are substantially equal in length to the spaces occupied by the ends of two of said flake frames measured transversely thereof and the vertical flange of the angle iron pusher 147, these spaces 146, 146 in the periphery of the carrier being provided to aline with the end portions of the flake frames as they pass beneath the carrier, so that the fish are deposited upon the reticulated portion of the flakes only, as hereinafter described.

A shield 148 extends around a portion of the periphery of the rotary carrier 102 and terminates at its lower end adjacent to one of the flakes 144. This shield prevents fish from falling out of the pockets 139 as the same pass downwardly until said pockets arrive at the lower end of the shield, when the fish is pushed along the shield to the

lower end thereof and drops out of the pocket off of the shield and onto a flake 144 which is located immediately therebeneath. The flakes 144 are moved along beneath the carrier by mechanism which will now be described.

The frame 149 consists of two side frames 150, 150 supported upon suitable standards 151, 151. Angle irons 152, 152 are fastened to the inner sides of the side frames 150 and constitute guides and supports for the endless chain conveyers 153, 153. These endless conveyers 153 extend around sprockets 154, 154 and 155, 155. The sprockets 154 are fast to a shaft 156 journaled in bearings on the frame of the machine and the sprockets 155 are fast to a shaft 157 also journaled in bearings on the frame of the machine.

A rotary motion is imparted to the shaft 141 by a pulley 158 fast to said shaft which is journaled in bearings on the frame of the machine. The shaft 141 has a sprocket gear 159 fast thereto which is connected by a sprocket chain 160 to a sprocket gear 161, said sprocket gear, in turn, being fastened to the shaft 134 journaled to rotate in bearings on the frame of the machine and having a spur gear 162 fast thereto and meshing into a spur gear 163 fast to the shaft 157. Thus the shaft 157 is rotated by the pulley 158, sprocket gear 159, sprocket chain 160, sprocket gear 161, and spur gears 162 and 163.

The sprocket chains 153, 153 are connected together by angle bars 147, 147, preferably formed of angle iron and extending transversely of the conveyer chains 153. These bars are placed at distances apart substantially equal to the length of the flakes 144, 144 and act as pushers to push said "flakes" along the frame in the direction of the arrow *f* (Fig. 8), said flakes being guided between the angle irons 152, 152 against movement transversely of the frame.

As will be seen by reference to Fig. 7, there is, in effect, a segregator 128 for each of the double circumferential series of pockets in the carrier 102—that is, the segregator 128, as a whole, is divided by partitions 164 into six series of pockets 127, so that the fish, as they are delivered to this segregator, are carried around in the direction of the arrow and dropped out of the pockets one by one onto the guide 136 and delivered one by one into the pockets of the carrier 102. The guide 136, it will also be noted, is divided into a series of chambers 165 by partitions 166, 166. The number of chambers 165, the number of circumferential series of pockets 127 and the number of double series of circumferential pockets 143 is six in each case. It will be noted, however, that while it is preferable to have the carrier 102 divided into a series of pockets longitudinally thereof by means of the partitions 124, 124, yet these partitions may be omitted and the fish laid in the pockets in the carrier 102 in numbers say of six in each of the long pockets thus produced, so long as the fish are separated into fractional portions from the original mass and directed into suitable guiding means, whereby they are finally delivered by a plurality of delivery chutes or guides to the periphery of the carrier 102 at different points, respectively, longitudinally of said carrier.

The general operation of the mechanism for handling, cutting and flaking fish hereinbefore described is as follows: The fish are poured from barrels at unequal intervals of time and in unequal quantities into the receptacle 10 (Fig. 1) and pass from said receptacle, aided by water from the pipe 17, down the inclined chute 12 and into the conductor 13, along which they are carried by the endless belt 14 in the direction of the arrow *a*. At the end of the endless conveyer 14 they are deposited in the boot 18 at the foot of the elevator 19. Water, it will be understood, is supplied at all points in the operation of the mechanism now being described and the fish float along in the water and into the boot 18 and are there washed, the dirt and scales passing out through the perforations 20 in said boot and the buckets 21 pushing the fish through the water in said boot and carrying them upwardly in the direction of the arrow *b* over the pulley 23 where they are dumped in substantially equal quantities at equal intervals of time into the chute 25. The chute 25 conveys these equal quantities of fish at equal intervals of time to the interior of the rotating drum 27 and they are then assorted according to size and passed from said drum down the chutes 28, 29, 30 and 31 to a series of segregators, from whence they are carried on to the cutting mechanisms, only one of which is illustrated in the drawings. The fish pass from the chute 30 down the conductor 34 and are subdivided into equal fractional portions thereof by the segregator 36 in the manner hereinbefore described. They then pass from the segregator 36 down the U-shaped chutes 54 and 63 and are delivered thereby to the segregator 66 which divides them into equal fractional portions and feeds them to the guide 75, along which they are pushed by the fingers 77 of the feed member 78 into the pockets 80 of the carrier 81 of the cutting machine. The heads and tails are then cut off by the rotary cutters 85, as hereinbefore described, the heads passing down the chute 86 to the receptacle 87, while the bodies pass down the chute 88 to the conductor 89, thence passing along the conductor 89, being floated therealong by water. Said fish then pass downwardly into the brine tank 90 and from the brine tank

they pass along the conductors 92 and 93 into the boot 94 at the end of the elevator 95. The fish are now without heads and tails and are cleaned in this boot by the water in the manner hereinbefore described and are carried upwardly by the buckets on the elevator 95 and dumped into the chute 100, by which they are guided into the elbow 123 of the separator 101 from which they pass through the outlet end of said elbow in still further subdivided fractional portions of the original mass of fish along pipes 125 and chutes 126 into pockets 127 on the segregator 128. The segregator 128 delivers the fish one by one to the guide 136 and said fish are pushed along the guide 136 one by one by means of the fingers 138 on the rotary feed member 140 into the pockets 139 in the carrier 102. Said fish are then delivered by the carrier in a series of rows to the flakes 144, and said flakes being moved along beneath the carrier by the endless conveyer belts 153, the fish are laid evenly over the entire surface of the flake frames and are then removed by an attendant and put in racks to dry.

It will thus be seen that by means of the mechanism hereinbefore described fish can be dumped into the receptacle 10 in unequal masses at unequal times and by means of said mechanism be automatically separated into fractional portions of the original mass, their heads and tails cut off, and the bodies of the fish carried and delivered one by one in rows which extend entirely across the flake and in equally divided spaces on the reticulated portion of said flakes without the assistance of any hand labor, except the attendant who throws the fish into the machine and the two attendants who handle the flakes at the further end, as above set forth. In fact, one attendant might deposit a large number of fish at one end of the machine, supply the flakes and remove the same with the fish thereon at the other end of the machine.

Having thus described my invention, what I claim and desire by Letters Patent to secure is:

1. Automatic mechanism for handling and cutting fish having, in combination, a receptacle adapted to receive fish in mass, an assorting mechanism and means to automatically operate the same to subdivide a mass of fish of different sizes into a plurality of lots of fish, the fish in each of said lots respectively being of substantially the same size and a plurality of cutting mechanisms, each adapted to cut the fish of one of said lots of fish, respectively, and means adapted to guide said fish from said receptacle to said assorting mechanism and from said assorting mechanism to the respective cutting machines.

2. Automatic mechanism for handling and cutting fish having, in combination, a receptacle adapted to receive fish in mass, an assorting mechanism adapted to operate continuously and means to automatically operate the same to subdivide a mass of fish of different sizes into a plurality of lots of fish, the fish in each of said lots respectively being of substantially the same size, and a plurality of cutting mechanisms, each adapted to cut the fish of one of said lots of fish, respectively, and means adapted to guide said fish from said receptacle to said assorting mechanism and from said assorting mechanism to the respective cutting machines.

3. Automatic mechanism for handling and cutting fish having, in combination, a receptacle adapted to receive fish in mass, an assorting mechanism, means to automatically operate said assorting mechanism to subdivide a mass of fish of different sizes into a plurality of lots of fish, the fish in each of said lots respectively being of substantially the same size, a plurality of segregators, each adapted to subdivide the fish of one of said lots, respectively, into fractional portions thereof, and a plurality of cutting mechanisms, each adapted to cut the fish of one of said lots, respectively, and means adapted to guide said fish from said receptacle to said assorting mechanism, from said assorting mechanism to said segregators and from said segregators to said cutting mechanisms.

4. Automatic mechanism for handling and cutting fish having, in combination, a receptacle adapted to receive fish in mass, a segregator adapted to subdivide said mass of fish into fractional portions thereof, an assorting mechanism, means to automatically operate the same to subdivide said fractional portions into a plurality of lots of fish, the fish in each of said lots, respectively, being of substantially the same size, a plurality of segregators, each adapted to subdivide the fish of one of said lots, respectively, into fractional portions thereof, a plurality of cutting mechanisms, each adapted to cut the fish of one of said lots, respectively, a flaking machine embodying a flake and mechanism adapted to deposit said fish decapitated on said flake in series longitudinally and transversely thereof, means to guide said mass of fish from said receptacle to said first-named segregator, thence to said assorting mechanism, from said assorting mechanism to said plurality of segregators, thence to said cutting mechanisms and from said cutting mechanisms to said depositing mechanism.

5. Automatic mechanism for handling and cutting fish having, in combination, mechanism adapted to decapitate fish, flak-

ing mechanism embodying a flake and mechanism adapted to deposit said decapitated fish on said flake in series longitudinally and transversely thereof and conducting means adapted to guide said fish from said decapitating mechanism to said depositing mechanism.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRANCIS D. CLEVELAND.

Witnesses:
CHARLES S. GOODING,
SYDNEY E. TAFT.