

Nov. 15, 1927.

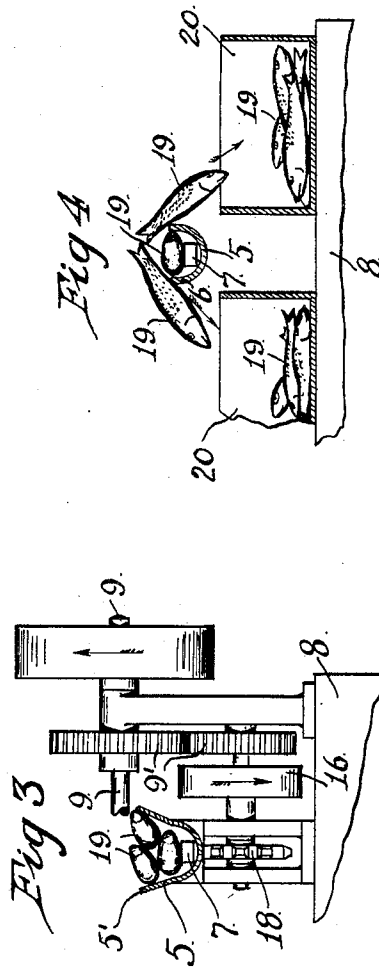
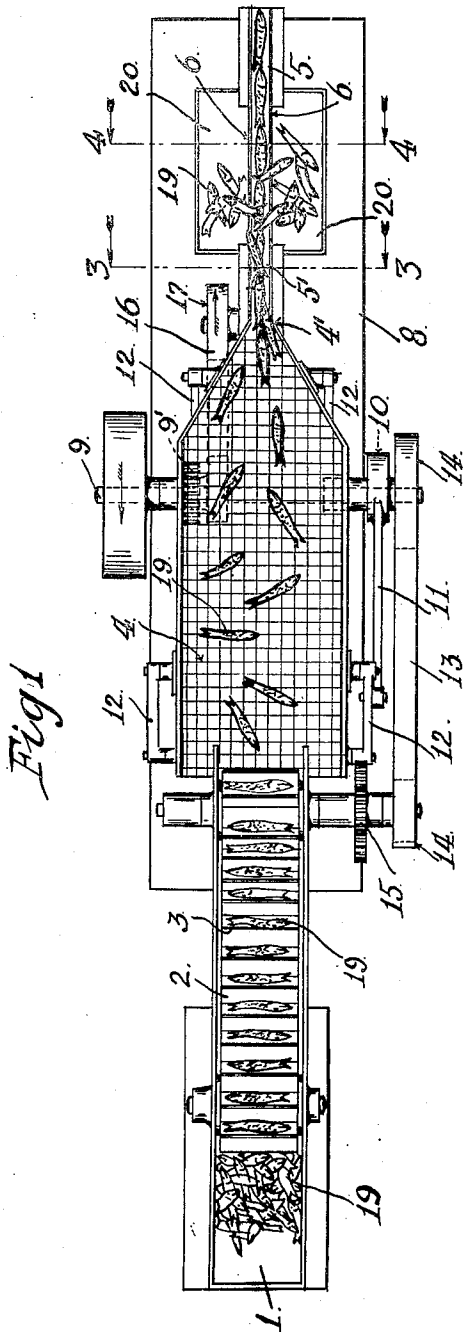
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J. A. GRAY

FISH FEEDING MEANS

Filed Jan. 19, 1926

2 Sheets-Sheet 1



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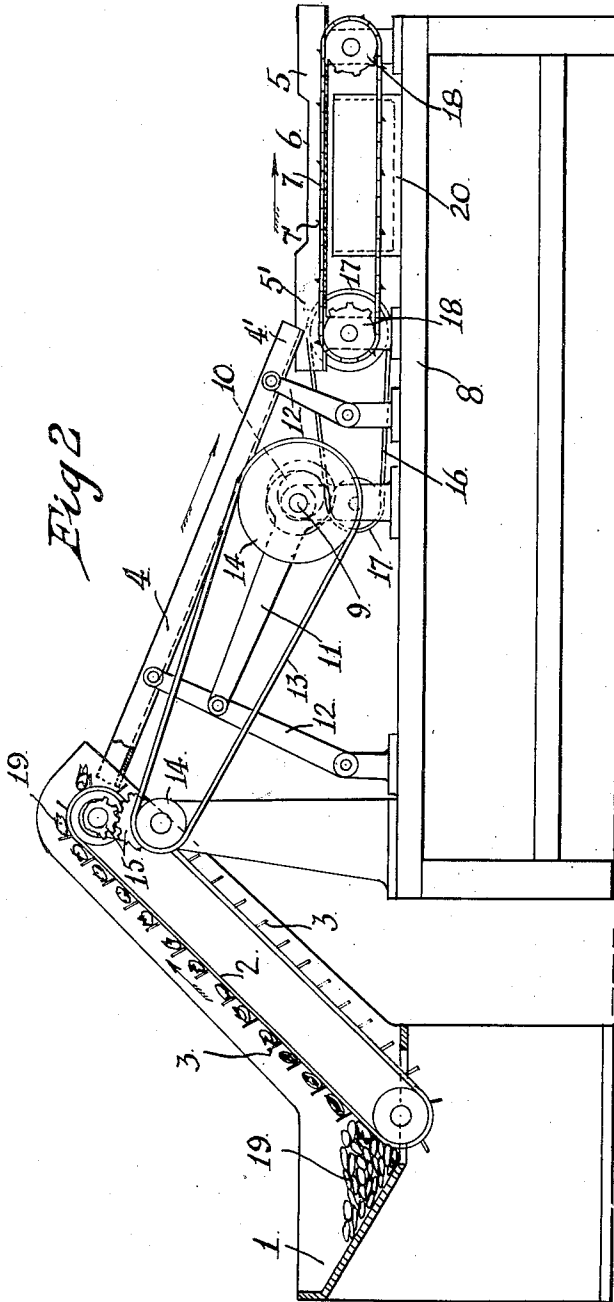
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FISH FEEDING MEANS

Filed Jan. 19, 1926

2 Sheets-Sheet 2



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# UNITED STATES PATENT OFFICE.

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## FISH-FEEDING MEANS.

Application filed January 19, 1926. Serial No. 82,275.

My invention relates to feeding devices of the type which reduces a disorganized or indiscriminate crowd of individuals to orderly file and in proper position to be supplied to a treating effect; and though said invention may be applied to various aggregates, it is particularly designed for use in the fish-canning art, for effectively and economically feeding fish to an eviscerating machine.

One of the factors of efficiency in a feeder of this type is to save time by positioning a number of individuals continuously and as close together as possible. This, however, would naturally tend to a crowding and clogging effect at the point of entrance to the trough in which the individuals should proceed in single file, if said entrance were made small enough to exclude all but a single individual. One of the objects of my invention is to obviate this difficulty; and this I accomplish by making the inlet end of said file reducing trough sufficiently capacious to receive plural individuals riding upon one another in substantially end to end contact so that spaces between adjacent ends of individuals are eliminated; and beyond said mouth, cutting away the side walls of the trough to a depth sufficient only to confine the ridden individuals forming a continuous relatively unbroken stream, the overlying or riding individuals dropping out for want of lateral support.

Eviscerating machines require the uniform presentation of the fish, with respect to their longitudinal axis, in order that their heads or their tails or both may be initially severed.

Another object of my invention is to provide for this uniform positioning prior to their entrance to the file reducing trough, and this I attain by means of a shaking table with a roughened surface, such, for example, as a screen, which surface has the effect, due to the fins, gills, and scales of the fish, of turning them lengthwise in the direction of travel, say, for example, heads foremost.

Another object of my invention is by the combination of these effects, to provide a simple, effective and capacious feeding device especially useful in handling fish.

In the accompanying drawings, I show a feeding device embodying my improvements in a form I have found serviceable, though it must be understood that changes may be

made within the purview of the claims herein without departing from the spirit of the invention.

In the drawings—

Fig. 1 is a top plan view of my feeder, showing the fish passing through it.

Fig. 2 is a side elevation of the feeder.

Fig. 3 is a section on the line 3—3 of Fig. 1.

Fig. 4 is a section on the line 4—4 of Fig. 1.

1 is an initial receiving hopper, with which is associated an elevator 2, the flights 3 of which pick up the fish singly from the hopper.

4 is a positioning table, which, in its best form, is a framed screen, to which is imparted a shaking movement by suitable means presently to be described. To the head of the screen table 4 the elevator delivers the fish.

The table 4 at its foot end narrows in, to its outlet 4' which communicates with the inlet end 5' of a trough or channel 5. The receiving capacity of this inlet end as defined by the height of its walls is such, as shown in Figs. 1 and 3, that more than one fish may enter it if the fish lie or ride upon one another.

The trough 5, beyond its inlet end, has its side walls cut out, as shown at 6 in Fig. 2, to a depth sufficient to permit them to confine only a single lowermost or ridden fish, as shown in Fig. 4, thus removing lateral support from the superposed or riding fish.

In the trough 5 is an endless conveyer 7, Fig. 2, here shown as having spikes or teeth 7' which deliver the fish to whatever treating machine, may be used, say, for example, an eviscerating machine, which, as it forms no part of the present invention need not be herein shown.

The several parts heretofore mentioned are carried by a suitable frame 8, and motion may be imparted by suitable mechanism. Illustration of such means is given here by the shaft 9, by which power enters the machine. Upon this shaft is an eccentric 10 operating an eccentric rod 11 which is connected with one of the links 12, carrying the positioning screen table 4, and by which it is shaken.

From the shaft, through belt 13, pulleys 14 and gears 15, the elevator 2 is driven,

Also from said shaft, through gears 9', Fig. 3, belt 16, pulleys 17 and sprockets 18 the conveyer 7 of the trough 5 is driven.

The operation of the feeder is as follows:—

The fish, indicated by 19, are deposited en masse in the hopper 1. From the hopper they are, in the usual manner of such elevators, picked up singly by the flights 3 and are delivered upon the shaking screen table 4, as seen in Fig. 1. Upon this table they are advanced, and by reason of the obstruction which the fins, scales and gills offer in conjunction with the roughness of table, the fish are ultimately turned lengthwise in the direction of their advance and travel head foremost, as in Fig. 1, thus being uniformly positioned. Since the approach of the fish to the foot of the table is not uniform as to speed rate, some individuals out-distancing others, it may, and usually does, often happen that several fish may reach the table outlet and be delivered to the inlet end of the trough 5 at or about the same time. This, however, is provided for, so that no clogging occurs, because several fish, riding wholly or partially upon one another, are received in the specially capacious end of the trough, as seen in Fig. 3. In such case, the group proceeds in the trough until the cut out walls 6 of the trough are reached, whereupon lateral support being removed from the riding fish they drop out into receptacles 20 and are eventually returned to the hopper 1.

The single lowermost fish, however, being fully confined, continues its course in its positioned relation through the trough to its destination, as in Fig. 1.

I claim:—

1. In a feeder, a channel through which the individuals fed travel, said channel having an inlet end with capacity to receive plural individuals riding upon one another, and said channel beyond its inlet end having its side open to a depth adapting it to confine the ridden individual and to relieve the riding individual of lateral support, and a conveyer in said channel extending from said inlet to receive the fish and extending past said open part of the channel to discharge fish which overlie those which are immediately on the conveyer.

2. A feeder comprising a member for advancing the individuals to be fed and automatically, uniformly positioning them with relation to their length; and a channel member communicating with said positioning member and adapted to advance individuals in said positioned relation, said channel member having an inlet end with capacity to receive plural individuals riding upon one another, and beyond its entrance having its side open to a depth adapting it to confine

the ridden individual and to relieve the riding individual of lateral support, and a conveyer in said channel member extending from said inlet to receive the fish and extending past said open part of the channel member to discharge fish which overlie those which are immediately on the conveyer.

3. A feeder comprising a shaking screen table for advancing the individuals to be fed and automatically, uniformly positioning them with relation to their length; and a trough communicating with said screen table and adapted to advance the individuals in said positioned relation, said trough having an inlet end with capacity to receive plural individuals riding upon one another, and having beyond its inlet end its side walls cut out to a depth adapting them to confine the ridden individual and to relieve the riding individual of lateral support, and a conveyer in said trough extending from said inlet to receive the fish and extending past said open part of the trough to discharge fish which overlie those which are immediately on the conveyer.

4. A machine for positioning and feeding fish, having in combination a hopper, an elevator taking fish from said hopper, an inclined table on which the fish are positioned head first as they descend thereon, a narrowed outlet and trough leading from said outlet and a conveyer in said trough carrying the fish head first, the sides of said trough being of a height to confine a single layer of fish, whereby additional overlying fish are discharged sidewise from the conveyer.

5. A machine for positioning and feeding fish, having in combination a hopper, an elevator taking fish from said hopper, an inclined wire screen table on which the fish are positioned head first as they descend thereon, a narrowed outlet and trough leading from said outlet and a conveyer in said trough carrying the fish head first, the sides of said trough being of a height to confine a single layer of fish, whereby additional overlying fish are discharged sidewise from the conveyer.

6. A machine for positioning and feeding fish, having in combination a hopper, an elevator taking fish from said hopper, an inclined table on which the fish are positioned head first as they descend thereon, means for agitating said table, a narrowed outlet and trough leading from said outlet, and a conveyer in said trough carrying the fish head first, the sides of said trough being of a height to confine a single layer of fish, whereby additional overlying fish are discharged sidewise from the conveyer.

In testimony whereof I have signed my name to this specification.

JAMES A. GRAY.