

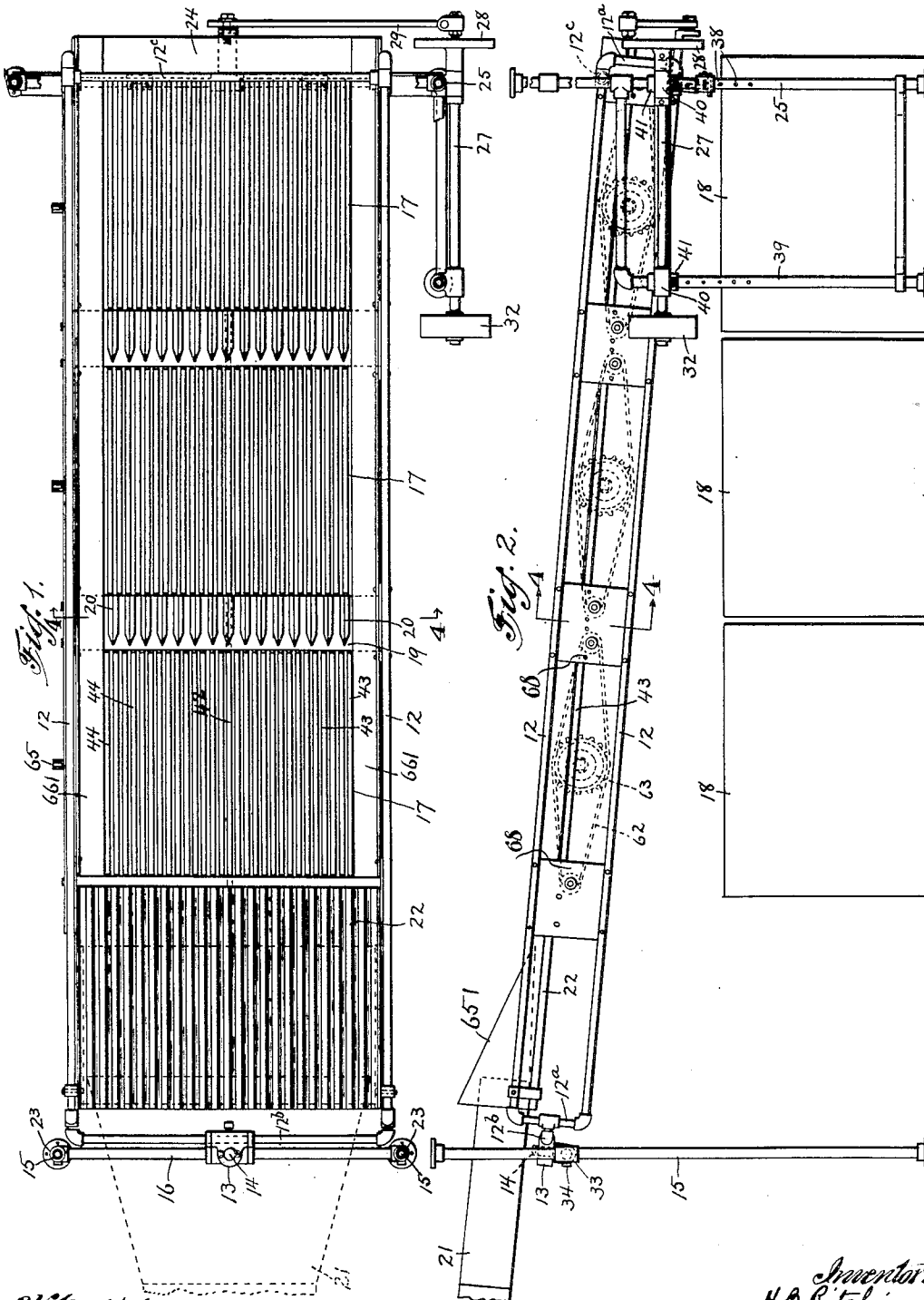
H. B. RITCHIE.
ASSORTING MACHINE.

APPLICATION FILED MAR. 29, 1910. RENEWED AUG. 9, 1912.

1,056,369.

Patented Mar. 18, 1913.

4 SHEETS—SHEET 1.



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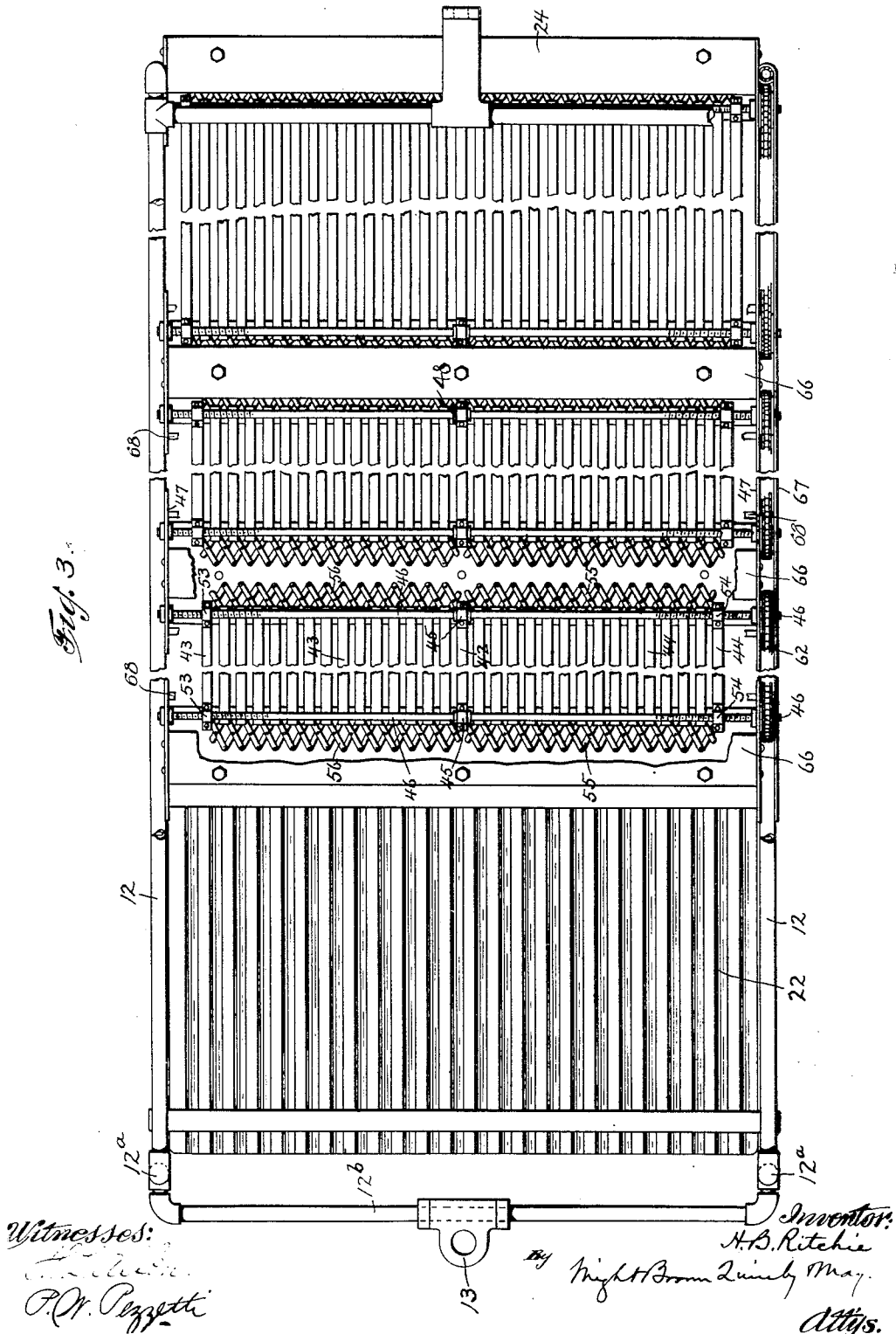
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4 SHEETS-SHEET 3.

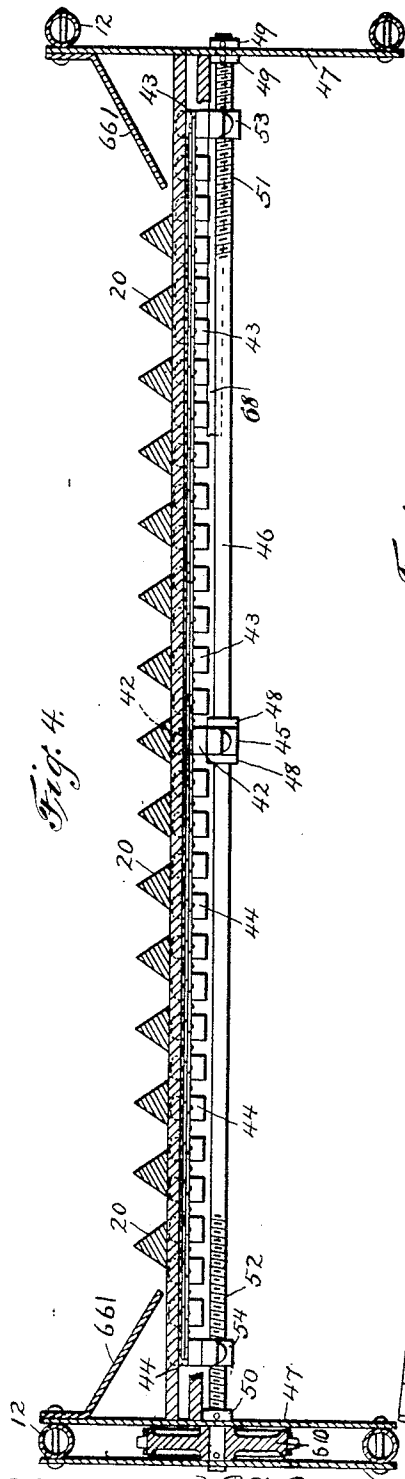


Fig. 4.

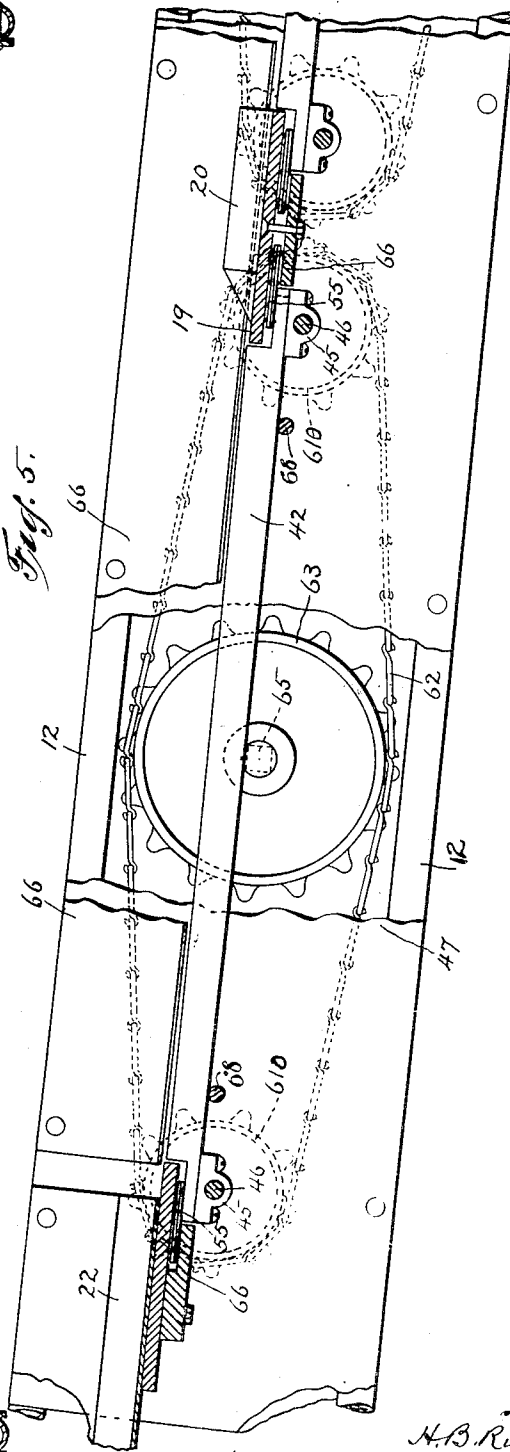


Fig. 5.

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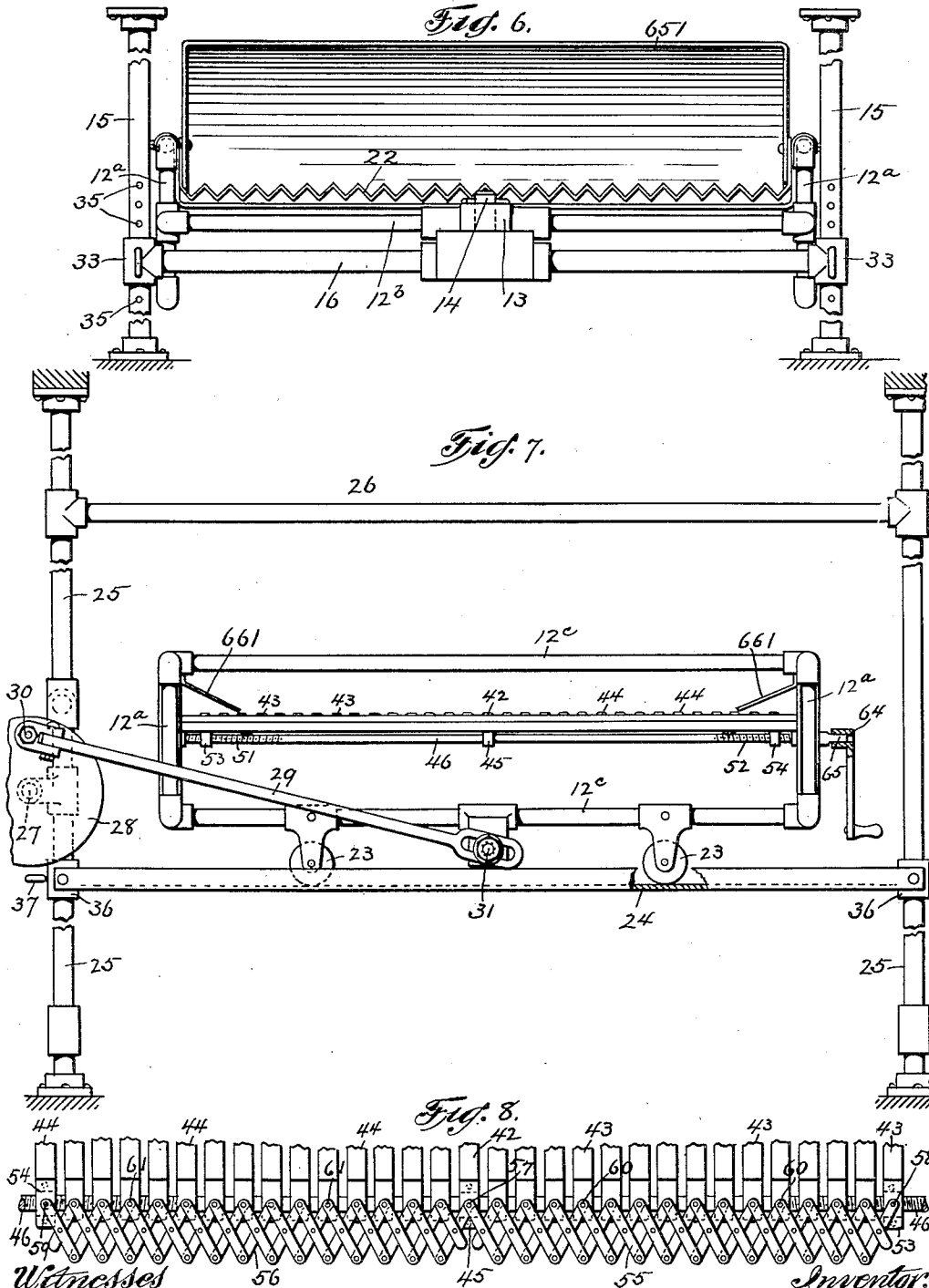
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4 SHEETS-SHEET 4.



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UNITED STATES PATENT OFFICE.

HOWARD B. RITCHIE, OF HYDE PARK, MASSACHUSETTS.

ASSORTING-MACHINE.

1,056,369.

Specification of Letters Patent.

Patented Mar. 18, 1913.

Application filed March 29, 1910, Serial No. 552,257. Renewed August 9, 1912. Serial No. 714,305.

To all whom it may concern:

Be it known that I, HOWARD B. RITCHIE, of Hyde Park, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Assorting-Machines, of which the following is a specification.

This invention has for its object to provide a machine for assorting and grading elongated bodies such as sardines or other relatively small fish preparatory to cooking and packing.

While my invention may be used for assorting various kinds of fish or other articles I will hereinafter designate the articles assorted by the machine as sardines, it being understood, however, that this term is used for convenience and is intended to designate any kind of fish, the assorting of which is desirable.

The machine has for its object to provide a simple and effective machine adapted to readily assort and grade large masses or quantities of sardines.

The invention also has for its object to provide a machine of this character which shall be adjustable so that a mass of sardines may be assorted into as many grades as may be desirable, the machine being so adjustable that it is capable of delivering, in each grade, fish of any desired size.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings which form a part of this specification—Figure 1 represents a top plan view of an assorting machine embodying my invention. Fig. 2 represents a side view of the same. Fig. 3 represents a bottom view, the machine being inverted. Fig. 4 represents a section on line 4—4 of Figs. 1 and 2. Fig. 5 represents an enlargement of a portion of Fig. 2, certain parts being broken away, and other parts shown in section. Fig. 6 represents an elevation of one end of the machine. Fig. 7 represents an elevation of the opposite end of the machine. Fig. 8 represents a fragmentary top view showing one end of one of the grids.

Similar reference characters indicate the same parts on all the figures.

The machine as illustrated in the drawings includes a grid-supporting frame composed of side members 12, each of which is

preferably composed of elongated metal rods or tubes connected at one end of the frame by transverse members 12^a, these being connected by transverse members 12^b, constituting one end of the frame, and transverse members 12^c constituting the opposite end of the frame. The member 12^b is provided with an ear 13 which receives a pivot stud 14 which is supported by a head frame composed of uprights 15 and a transverse bar 16 connecting said uprights. The ear 13 and stud 14 constitute a hinge or pivotal connection between the grid-carrying frame and the head support. The pivot stud 14 is preferably mounted to rock or oscillate on the supporting member 16 to permit a variation of the inclination of the grid-supporting frame as hereinafter described.

The grid-supporting frame is provided with a series of grids 17, three of which are here shown, these grids being composed of bars extending length-wise of the frame and separated by spaces through which sardines of a given size are adapted to pass into a box or receptacle 18. Each grid is preferably adjustable to vary the width of the space between its bars, the construction which permits this adjustability being fully described hereinafter.

Between the grids 17 are cross bars 19 having guiding ribs 20 between which sardines may pass from one grid to the next, the frame and the grids being inclined and said inclination, together with the horizontal oscillation of the frame as hereinafter described, causing the sardines to slide along the grids and across the cross-bars 19, the guides 20 causing the sardines to pass end-wise from one grid to the other. Said guides are preferably triangular in cross-section, so that they present sloping sides, as shown in Fig. 4.

The sardines are delivered to the machine through a chute 21, which may communicate with a suitable hopper, not shown, and discharge the sardines upon a delivering table 22 which is attached to the grid-supporting frame and is inclined therewith, said table being adapted to position the sardines discharged upon it so that they will extend substantially parallel with the grid bars and will, therefore, pass length-wise from the delivering table to the first grid. The delivering table is provided with longitudi-

nal ribs which are preferably formed by bending or corrugating the sheet metal plate of which the table 22 is made.

It will now be understood that the higher end of the grid-supporting frame is hinged to a head support, and that sardines discharged upon the delivering table 22 are caused by the inclination, and by a shaking motion or oscillation of the table, to slide down the delivering table to the first grid, where all below a certain size are separated from the rest and pass downwardly between the bars of the grid, the larger sardines passing across the first cross-bar 19 to the second grid where they are again sorted. The sardines remaining on the second grid pass to the third grid where the final assorting is effected.

The lower transverse member 12^c of the grid-supporting frame is provided with rollers 23 (Fig. 7) which are adapted to run upon a transverse track 24, forming a part of a fixed foot frame, or support, located at the lower end of the grid-supporting frame. Said foot frame includes fixed uprights 25 to which the track 24 is attached, said track constituting one of the members of the frame, the upper portions of said members being preferably connected by a transverse frame member 26. The foot frame is provided with mechanism for imparting a horizontal reciprocating movement to the lower end of the grid-supporting frame, the latter being thus oscillated on its pivotal connection with the head frame. Said mechanism, as here shown, includes a shaft 27 journaled in bearings in the foot frame and provided with a face plate 28, and a connecting rod, or pitman, 29 engaged at one end with a wrist pin 30 on the face plate 28 and at its opposite end with a stud 31 affixed to the member 12^c of the grid-supporting frame.

The shaft 27 may be rotated by any suitable means, such as a belt running from a pulley on a driving shaft, to a pulley 32 on the shaft 27.

The uprights 15 of the head frame and the uprights 25 of the foot frame are preferably adapted to be attached at their upper ends to beams or other overhead supports, and at their lower ends to a floor, provision thus being made for firmly securing said frames in place.

The inclination of the grid-supporting frame may be varied by vertically adjusting the transverse member 16 of the head frame on the vertical members 15, and by vertically adjusting the track 24 and the bearings of the shaft 27 on the vertical members of the foot frame. As here shown, the head frame member 16 has collars 33 at its ends which are slidable on the uprights 15, and are adapted to be secured at any desired height on said uprights by pins or

bolts 34 adapted to enter holes 35 located at different heights in the uprights 15.

The ends of the transverse track 24 are here shown as attached to collars 36 which are slidably mounted on the uprights 25 of the foot frame, and may be attached thereto at different heights by pins 37 adapted to enter holes 38 formed for their reception in the uprights 25. The foot frame is provided with extensions which include uprights 39.

The bearings 40 in which the shaft 27 rotates, are formed on collars 41 which are slidably mounted on the uprights 25 and 39 and may be supported at various heights by pins adapted to enter orifices in said uprights. It is obvious, however, that any suitable means may be provided for supporting the ends of the grid-supporting frame, and for supporting the shaft 27, at various heights.

As before stated, the bars of the grids 17 are preferably adjustable relatively to each other to vary the space between the bars and thus adapting each grid to permit the separation of sardines of any desired size from a mass or stream passing over it. The preferred construction of each grid whereby this adjustability is secured, will be next described, it being understood that the construction is the same in each of the grids, so that a description of one will suffice.

Considering for the purposes of this description, the first or higher grid, let it be understood that the grid is composed of a non-adjustable central bar 42, a series of adjustable bars 43 at one side of the central bar and a series of adjustable bars 44 at the opposite side of the central bar. The end portions of the central bar 42 are provided with bearings 45 which embrace two transverse shafts 46, the end portions of which are journaled in bearings in plates 47, attached to the side members 12 of the grid frame, the said bearings 45 being confined between collars 48 affixed to said shafts. The shafts 46 are prevented from moving endwise by collars 49 bearing on opposite sides of one of the plates 47, and by a collar 50 bearing on the inner side of the other plate 47. (See Fig. 4.) The central grid bar is, therefore, held against lateral movement in either direction. Each shaft 46 is provided at one end portion with a right hand screw thread 51 and at its opposite end portion with a left hand screw thread 52. The outermost adjustable grid bar 43 is provided with nuts 53 which engage the threads 51 of the shafts 46. The outermost adjustable grid bar 44 is provided with nuts 54 which engage the screw threads 52 of the shafts 46.

With the opposite ends of the adjustable grid bars 43 are connected two lazy-tongs 55, and with the opposite ends of the adjustable grid bars 44 are connected two lazy-

tongs 56. The inner members of the said lazy-tongs 55 and 56 are pivoted at 57 to the bars 45; the outer members of the lazy-tongs 55 are pivoted at 58 to the nuts 53; the outer members of the lazy-tongs 56 are pivoted at 59 to the nuts 54. The intermediate members of the lazy-tongs 55 are pivoted at 60 to the ends of the adjustable grid bars 43; and the intermediate members of the lazy-tongs 56 are pivoted at 61 to the ends of the grid bars 44.

Means are provided for simultaneously rotating the shafts 46, said means including sprocket wheels 610 attached to said shafts, a sprocket chain 62 engaged with and connecting said wheels, and a driving sprocket wheel 63 located between the shafts 46 and engaged with the chain 62, the said driving wheel 63 being rotatable by a crank 64 (Fig. 7) engaged with a squared shank 65 attached to the hub of the wheel 63.

The rotation of the shafts 46 in one direction causes the simultaneous elongation of the lazy-tongs 55 and 56 and a simultaneous outward movement of the adjustable grid bars 43 and 44, provision being thus made for the differentially moving and adjustable grid bars in such manner as will keep the same uniformly spaced apart under all adjustments, so that an elongation of the lazy-tongs, simultaneously increases the width of the space of all the grid bars to the same extent. The contraction of the lazy-tongs caused by the opposite rotation of the shafts 46 causes a simultaneous decrease of the width of the spaces between the grid bars.

The lazy-tongs are supported by transverse bars 66 (Fig. 5) attached to the grid frame and arranged to support the under sides of the lazy-tongs, the latter being in sliding contact with the bars 66.

The first grid of the series preferably has a larger number of bars than the second, and the second a larger number than the third, the lazy-tongs connected with the second and third grids being so proportioned that when all the lazy-tongs are fully contracted the spaces between the bars of the second grid will be slightly wider than those between the bars of the first grid, a corresponding difference existing in the relative spacing of the bars of the second and third grids.

It will be seen from the foregoing that provision is made for adjusting each grid to vary the size of the sardines passing through it, and that each grid is adjustable independently of the others.

651 represents a hood which is located over the table 22, and is formed to prevent the scattering of the sardines issuing from the chute 21.

661, 661 represent inclined guards attached to the side members of the guide

frame and overhanging the outer bars of the grids; said guards being in close proximity to the guide bars without contacting therewith, so that they do not interfere with the adjustment of the bars. The guards 661 confine the stream of sardines to the space over the grids.

The sprocket wheels 61 and 63 and the chain 62 are located in a casing formed by the frame members 12, one of the plates 47, and a plate 67 (Fig. 4) secured to one side of the grid frame.

My invention may be embodied in a machine having one or any other desired number of grids, so far as the adjustable construction of the grid is concerned.

My invention is not limited to details of construction here shown and described, and the same may be variously modified without departing from the spirit of the invention.

The adjustable grid bars 43 and 44 may be supported by transverse rods 68 (Figs. 2 and 5), suitably attached to the grid frame and extending across the under sides of all the bars including the central bar 42, the adjustable bars 43 and 44 being in sliding contact with said rods.

I claim:—

1. In an assorting machine, a plurality of adjustable grids in substantially one continuous plane, each grid comprising a non adjustable central bar, two series of adjustable bars at opposite sides of the central bar, means for simultaneously moving said adjustable bars toward and from the central bar to vary the width of the spaces between the bars, said means having provisions for keeping all the bars uniformly spaced apart under all adjustments, and guides between the respective grids for guiding elongated bodies from grid to grid.

2. In an assorting machine, a plurality of adjustable grids in substantially one continuous plane, each grid comprising a non adjustable central bar, two series of adjustable bars at opposite central sides of the central bar, and movable simultaneously toward and from the latter, lazy-tongs connected with said adjustable bars, means for extending and contracting the lazy-tongs to simultaneously adjust the adjustable bars and keep the said bars uniformly spaced apart under all adjustments, and guides between the respective grids for guiding elongated bodies from grid to grid.

3. In an assorting machine, a plurality of adjustable grids in substantially one continuous plane, each grid comprising a non adjustable central bar, two series of adjustable bars at opposite sides of the central bar, and movable simultaneously toward and from the latter, lazy-tongs connected with said adjustable bars, shafts extending crosswise of the grid, and each having two screw

threaded portions, one of which has a right hand and the other a left hand thread, nuts secured to the outer adjustable bars and engaged with said threaded portions, the rotation of said shafts causing a simultaneous movement of said nuts in opposite directions, and guides between the respective grids for guiding elongated bodies from grid to grid.

4. In an assorting machine, a plurality of adjustable grids in substantially one continuous plane, each grid comprising a non adjustable central bar, two series of adjustable bars at opposite sides of the central bar, and movable simultaneously toward and from the latter, lazy-tongs connected with said adjustable bars, nuts secured to the outer adjustable bars and engaged with said threaded portions, the rotation of said shafts causing a simultaneous movement of said nuts in opposite directions, means for simultaneously rotating said shafts, and guides between the respective grids for guiding elongated bodies from grid to grid.

5. In an assorting machine, a plurality of adjustable grids in substantially one continuous plane, each grid comprising a non adjustable central bar, two series of adjustable bars at opposite sides of the central bar, and movable simultaneously toward and from the latter, lazy-tongs connected with said adjustable bars, shafts extending crosswise of the grid, and each having two screw threaded portions, one of which has a right hand and the other a left hand thread, sprocket wheels attached to said shafts, a sprocket chain engaged with said wheels, a driving sprocket wheel between the shafts and engaged with said chain, and guides between the respective grids for guiding elongated bodies from grid to grid.

6. An assorting machine comprising a grid frame having a plurality of differently spaced grids in one substantially uniform plane, the bars of said grids extending longitudinally, means for supporting the grid frame in an inclined position, spaced guides between the grids and adapted to maintain

elongated bodies in alinement with the spaces between the grid bars, and means for oscillating the grid frame.

7. An assorting machine comprising a grid frame having a plurality of grids in one substantially uniform plane, each composed of bars which are relatively movable to vary the spacing of the grids, means associated with the bars of each grid to independently adjust the same, means for supporting the grid frame in an inclined position, means for shaking the grid frame, and guides between the respective grids for guiding elongated bodies from grid to grid.

8. An assorting machine comprising an inclined grid frame having a plurality of grids in one substantially uniform plane, each composed of longitudinally grid bars, the bars of each grid being differently spaced from those of the succeeding grid, ribbed guides between said grids, and means for shaking said frame.

9. An assorting machine comprising an inclined grid frame having a plurality of independently adjustable grids, in one substantially uniform plane, each spaced differently from the other, means for positioning elongated bodies and guiding the same to the higher grid, guides between the respective grids for guiding said bodies from grid to grid, and means for shaking the grid frame.

10. In an assorting machine, a plurality of grids in one continuous plane, said grids comprising bars, means for adjusting the spacing of the bars of each grid, means for directing elongated articles endwise to and along the grids, and means between the grids adapted to maintain elongated bodies in alinement with the spaces between the grid bars.

In testimony whereof I have affixed my signature, in presence of two witnesses.

HOWARD B. RITCHIE.

Witnesses:

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P. W. PEZZETTI.