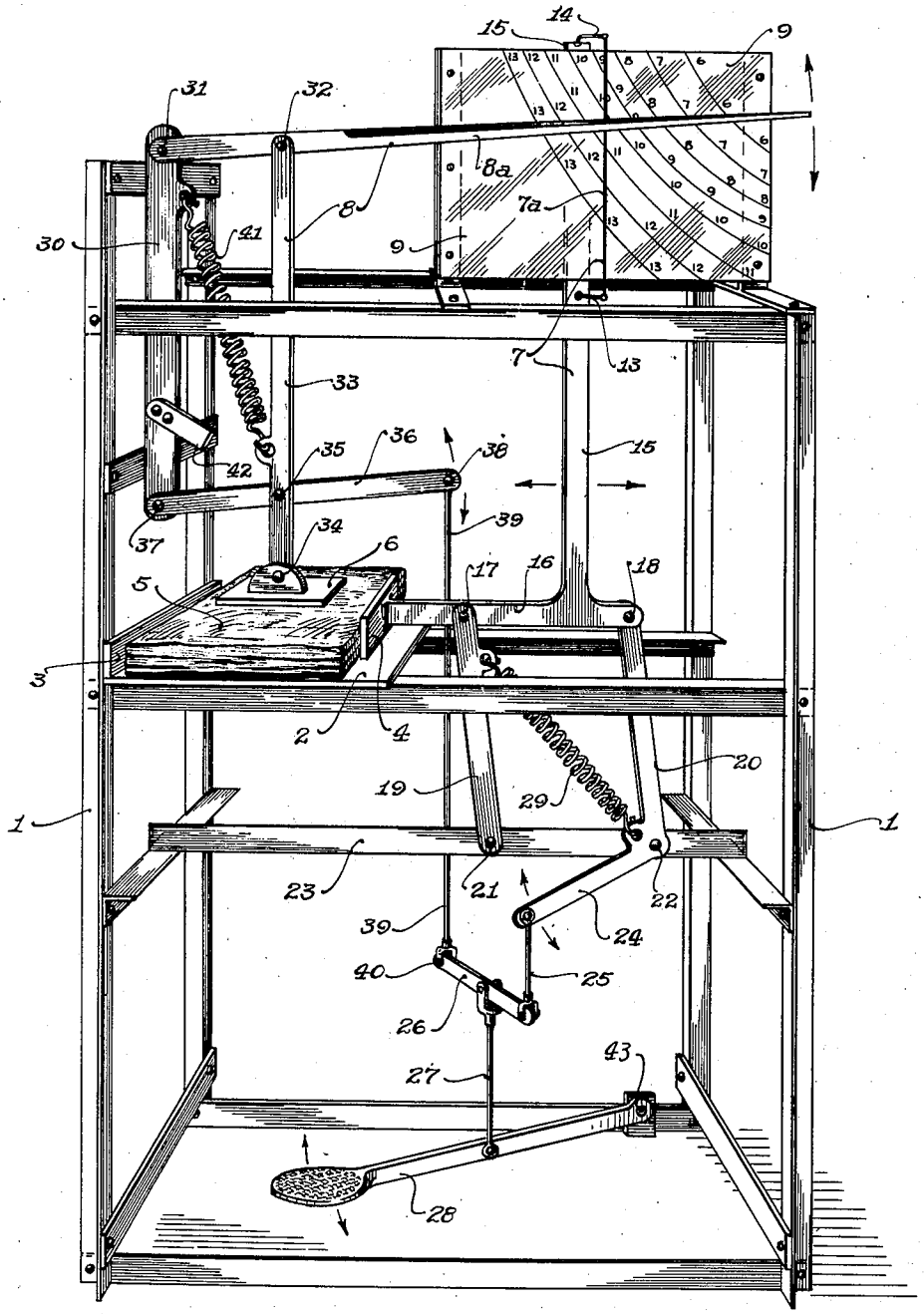
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CLASSIFYING MEANS

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CLASSIFYING MEANS

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9 Claims. (Cl. 33—121)

An object of the invention is to construct a machine according to and by which slabs of bacon or the like can be classified or sorted as to cross sectional area.

Such sorting is particularly useful in obtaining and assembling slabs of bacon that can successively be fed to continuous slicing and packing systems wherein the slabs are automatically cut one after the other into slices that are delivered in overlapping arrangement in spaced group formation upon a suitable conveying machine by means of which the group is conveyed to suitable inspecting and final wrapping stations. The construction, arrangement and operation of the slicing machine and the conveying mechanism leading therefrom is such that the same number of slices are delivered by the slicing machine for each group. Such a slicing and packing system has recently been developed and is the basis of several applications now on file in the United States Patent Office.

In an application about to be filed entitled Measuring and packaging method, there is described a plan according to which slabs of bacon are sorted, classified and assembled so that in any one collection there are included only those slabs having cross section areas within certain limits. When this is completed there is the deliberate pressing of the slabs in the particular collection to a definite cross sectional area—preferably to a cross section having a particular breadth and particular thickness—and the thereafter successive transversely cutting of such shaped slabs into slices having the same slice thickness.

A further object of the present invention is to construct and to provide a classifying machine for such use and the invention has in view the ultimate employing or embodying of certain important characteristics or features of the classifying machine in or with a machine for pressing or shaping the slabs so as to have a particular cross sectional area and/or shape preparatory to slicing of the slabs in or by a slicing machine.

With these and other objects in view, the invention consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawing, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Reference will now be made to the accompanying drawing forming a part of this specification.

In said drawing there is shown in perspective a classifying and indicating machine by which the invention may be realized. The machine shown in said drawing can be employed to indicate the number of slices of bacon of uniform thickness that will weigh a fixed amount, for example one-half pound. The successful use depends upon two factors (*a*) that the density throughout the length of the slab is substantially constant at all points, and (*b*) that the cross slab of a slab of bacon is very close to a rectangle throughout the length of the slab. The apparatus shown in said figure performs its function by measuring the cross-sectional area of the bacon slab and indicates this quantity in terms of the number of slices per unit of weight on a suitable scale, or in other words in conjunction with a suitable chart.

Reference will now be made to the drawing in detail. The reference character 1 represents a rigid frame work to which the several moving parts are attached and by which the several parts of the machine are carried. 2 represents a flat horizontally and transversely extending table on which rests or is placed a bacon slab to be measured. 3 is a fixed longitudinally extending side plate or member constituting a longitudinally extending abutment against which the bacon slab is forced by a transversely moving longitudinally extending side plate 4. 5 indicates a bacon slab in position to be measured.

This measuring is accomplished by positioning of the transversely movable longitudinally extending side plate 4 against the edge of the bacon slab and by positioning of a vertically movable top plate 6 against the upper surface of the bacon slab. This top plate 6 may be considered as a transversely and horizontally extending top plate which is movable along a vertical path towards and from the table 2. The locations of plates 4 and 6 respectively control the positions of indicating means or members 7 and 8 respectively. The indicating means 7 includes or comprehends a vertically extending indicating wire 7^a and the indicating means 8 comprehends or includes the pivoted relatively horizontally extending indicating arm 8^a. These indicating means operate in conjunction with the chart 9 bearing lines as 6, 7, 8, 9, 10, 11, 12, and 13. These indicating members or arms may be considered as functionally associated with respect to the chart. Each of these lines is marked with a series of figures corresponding thereto as figures 6, 7, 8,

9, 10, 11, 12, and 13 which are an indication of the number of slices of bacon per unit of weight.

The members 7a and 8a of the indicating means are operatively arranged in respect to the chart so that at the place or in the immediate vicinity where said members intersect or cross a reading can be taken from the marked lines thereat. In other words, the intersecting of members 7a and 8a over one of the curved lines on the chart is an indication of the number of slices per unit of weight. The number marked on said curved line is a direct reading of the number of slices of a certain thickness required to make up the desired weight unit.

The indicating means or member 7 comprises, as previously pointed out, a thin wire 7a stretched between brackets 13 and 14, which brackets are in turn supported by a vertical arm 15 which is rigidly fastened to a part of the mechanism that effects horizontal motion in a transverse direction of the movable longitudinally extending side plate. In fact the vertical arm 15 as shown is rigidly fastened to the horizontally transversely extending bar 16 which is in turn integral with side plate 4. This bar 16 is pivotally secured at 17 and 18 to the upper end of links 19 and 20, the latter of which may be considered as part of a bell crank lever 24, constituting part of a parallel motion mechanism. These links 19 and 20 are pivotally secured as at 21 and 22 to a fixed frame member 23. This construction, as previously indicated, allows the plate 4 to move in a horizontal but transverse direction because of the parallel motion mechanism just described. Any transverse motion of plate 4 brings about an equal or corresponding motion of indicating means or members 7 and the vertically extending indicating wire 7a thereof.

The bell crank lever 24 serves as the member by which motion is transmitted from a foot lever 28, hereinafter referred to, to and through the parallel motion mechanism, to the transversely movable side plate 4 and to the indicating means 7 associated therewith. This bell crank lever 24 is operated from the foot pedal 28 through the medium of link 25, the upper end of which is pivotally connected to bell crank 24, equalizing bar 26 and rod 27, the latter of which is pivotally connected at its lower end to foot pedal 28. The pressing of the foot downwardly on the lever 28 effects a transverse movement towards the left of the side plate 4 until the latter is arrested against further movement because of its contacting with a bacon slab upon the table. Spring 29 serves to return the side plate 4 to its extreme right-hand position and to simultaneously lift the foot pedal lever when the pressure of the foot is removed from the latter.

The indicating means 8 comprises straight lever 8a pivoted at 31 to a fixed frame member 30 and an inspection of the figure readily shows how the indicating member 8a crosses or in effect "intersects" the vertically extending wire or indicating wire 7a. At an intermediate or mid-point 32 of the lever 8a there is pivotally connected the upper end of a vertical rod 33 to the lower end of which rod there is pivotally connected the plate 6 as at the point 34. An intermediate point 35 of rod 33 is pivotally connected to link or lever 36, one end of which link or lever is pivoted to link or link member constituting part of lever 36. One end of the link or lever is pivoted at 37 to a fixed frame member 30 and the other end of the lever is pivotally connected at 38 to one end of a rod 39. The other end of the rod 39 is pivoted to equalizing bar 26 as at 40. The link or lever mechanism just described provides a parallel motion mechanism for vertically positioning the plate 6. The parallel motion mechanism just described is operated to effect downward movement of the plate 6 by downward pressure of the foot on the lever 28, the upward movement of the plate 6 is effected by means of the tension spring 41 hereinafter referred to. Because of this construction any vertical displacement of the top plate 6 will cause lever or arm 8a to rotate about the pivotal point 31. As the distance between the points 31 and 32 on lever 8a is small as compared with the distance between the points 32 and the normal indicating section of lever 8a, the motion or position of the plate 6 is in effect magnified. In other words a small vertical motion or variation in position of the vertical plate due to the variation in a thickness as between two bacon slabs will cause a relatively large motion of lever 8a across chart 9.

The spring 41 previously referred to serves to retract the parallel motion mechanism and to thereby hold the plate 6 in its extreme uppermost position in reference to the table under which conditions the link portion of lever 36 rests against any suitable stop as for example stop 42. It is clear from the construction shown that a downward displacement of foot pedal 28 which is pivoted to fixed frame 1 at point 43 will cause bacon contacting elements 4 and 6 to close in against the bacon slab 5.

The equalizing bar 26 in effect serves as a compensating means whereby both contacting elements 4 and 6 can always close in against a slab of bacon regardless of its breadth and thickness. In other words, even though the bacon slabs vary as to thickness and also as to breadth still because of this equalizing member the compensating can take place whereby the indicating mechanisms can function and can conjointly function.

The chart 9 is secured to and carried by the frame in any suitable manner and it will also be seen that the indicating members 7a and 8a will operatively associate with this chart. In other words so that they extend across but immediately in front of the chart.

The chart 9 has curved lines thereupon indicated as 6, 7, 8, 9, 10, 11, 12, and 13. These lines are laid out on the chart 9 by assuming a number of positions for plate 4 and calculating the corresponding position of plate 6 which will give the desired full number of slices. By choosing suitable positions on plate 4 and by calculating the corresponding positions of plate 6 for slice lines 6, 7, 8, 9, 10, 11, 12, and 13 the entire chart may be calibrated.

The operation of the machine is as follows, bacon slab 5 is placed on the table 2 with one edge thereof against the longitudinally extending fixed stop plate 3. Foot lever 28 is depressed, which action causes plates 4 and 6 to come in contact with the side and top respectively of the bacon slab 5. The intersection of indicating means 7 and 8 when interpreted in connection with lines 11, 12, etc., show the number of slices per unit of weight and said slice thickness for which the chart has been calibrated. When foot pedal 28 is released the tension springs 29 and 41 withdraw the plates 4 and 6 respectively in a direction away from the table on the one hand and the fixed contact member on the other, to wit from contact with the bacon, and reestab-

lish the machine readily for another measurement or for subsequent use.

What I claim is,

1. A classifying and indicating machine comprising in combination therein a fixed frame, a table having a longitudinally and transversely extending horizontal supporting surface, a longitudinally and vertically extending fixed side plate or abutment, cooperatively associated with said table, a longitudinally and vertically extending movable side plate arranged to be transversely positioned in a horizontal direction in respect to the fixed side plate, a horizontally and transversely extending movable top plate, transversely positionable in a vertical direction in respect to the table, means for positioning the movable side plate, said movable side plate positioning means comprising parallel links providing parallel motion mechanism whereby said movable side plate is positioned by a horizontal transverse movement thereof, means for positioning the movable top plate, said movable top plate positioning means comprising parallel links providing parallel motion mechanism whereby said top plate is positioned by a vertical transverse movement thereof, a common means for operating said positioning means for simultaneously effecting movement of the movable side plate and the movable top plate respectively toward the fixed side plate and the fixed table, cooperating indicating members, a chart carried by the frame and in respect to which chart said indicating members are functionally associated, one of said indicating members being operated by the parallel motion mechanism for positioning the movable top plate and the other of said indicating members being operated by the parallel motion mechanism for positioning the movable side plate, and spring means whereby the means for positioning said side plate and the means for positioning said movable top plate to hold said movable side plate and said movable top plate respectively in outermost position in respect to the fixed side plate and in respect to the table except when they are moved by said common operating means.

2. A construction as defined by the last preceding claim in which the chart has spaced, marked indicating lines and in which the indicating members cross and are arranged so that a reading is taken from the marked lines at the place in the immediate vicinity where the indicating members cross.

3. In combination, in a classifying and indicating machine, a main frame, a supporting table, a fixed side plate, a movable side plate, a movable top plate, side plate positioning means, top plate positioning means, associated indicating members, one of said indicating members for and associated with the side plate positioning means, and the other of said indicating members being for and associated with the top plate positioning means, and a chart on the frame with which said indicating members are operatively associated, and common means including an equalizer for operating said positioning means.

4. A classifying and indicating mechanism comprising in combination, a main frame, a supporting table, a top plate movable towards and from the supporting table, a fixed side plate, a movable side plate movable towards and from the fixed side plate, means carried by the frame and cooperatively associated with the top plate for guiding the latter in its movement towards and from the table, said guiding means having associated with a movable member thereof a pivoted indicating arm, means carried by the frame and cooperatively associated with the movable side plate for guiding the latter towards and from the fixed side plate, a vertically extending indicating member positionable by a movable element of the guiding means and a chart carried on and by the frame over and in respect to which chart the pivoted indicating arm and the vertically extending indicating member move, and means for operating and effecting movement of said top plate relative to the table and the movable side plate relative to the fixed side plate.

5. In a classifying and indicating machine, including a main frame, a supporting table, a fixed side plate, a movable side plate, a movable top plate, side plate positioning means, top plate positioning means, and associated indicating members, means for normally holding the side plate in retracted position and foot operative means for positioning the movable side plate toward the fixed side plate.

6. In a classifying and indicating machine, including a main frame, a supporting table, a fixed side plate, a movable side plate, a movable top plate, a side plate positioning means, top plate positioning means, and associated indicating members, means for normally holding the movable top plate in a retracted position and foot operative means for positioning the movable top plate toward the supporting table.

7. In a classifying and indicating machine, including a main frame, a supporting table, a fixed side plate, a movable side plate, a movable top plate, side plate positioning means, top plate positioning means, and associated indicating members, means for normally holding the movable side plate in a retracted position, means for normally holding the movable top plate in a retracted upper position, and foot operative means for positioning the movable side plate toward the fixed side plate and the movable top plate toward the supporting table.

8. In a classifying and indicating machine, including a main frame, a supporting table, a fixed side plate, a movable side plate, a movable top plate, side plate positioning means and top plate positioning means, a chart having marked, indicating lines thereupon, associated movable indicating members arranged to cross each other approximately at right angles, one of said indicating members moving with said movable side plate and the other of said indicating members moving with said movable top plate, whereby a direct reading can be taken from the chart at the point at which the two indicating members cross.

9. In combination, in a classifying and indicating machine, a main frame, a supporting table, a fixed side plate, a movable side plate, a movable top plate, side plate positioning means, top plate positioning means, associated indicating members, one of said indicating members for and associated with the side plate positioning means, and the other of said indicating members being for and associated with the top plate positioning means, and a chart on the frame with which said indicating members are operatively associated.

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