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54 **Apparatus for portioning meat.**

57 The apparatus comprises a horizontally arranged band-saw (12) and one or more rotary meat holders (20) arranged to feed primal cuts (42) of meat downwards and onto the bandsaw (12) to be cut into portions. A depth stop (38), which may be adjustable, determines the thickness of the cut portion. In a preferred form, the bandsaw (12) is substantially totally enclosed and two meat holders (20) are provided, one of which may be loaded while meat in the other is being portioned.

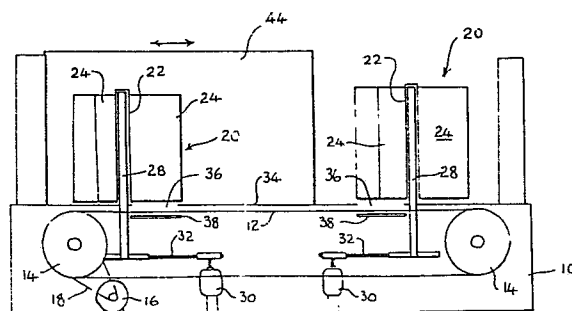


Fig.3

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DESCRIPTION"Apparatus for portioning meat"

This invention relates to apparatus for portioning meat and like comestible articles.

In the preparation of meat for consumption, it is usual to separate the carcass into a number of primal cuts and subsequently divide the primal cuts into portions. This
5 portioning has traditionally been effected by hand using knives, saws and cleavers, but in recent years attention has been directed to improving the productivity of the portioning operation in mass production meat processing.

10 Automatic machines are known in which a primal cut resting against a stop is moved in a rotary path into contact with a powered rotating cleaving blade. The severed portion is removed, e.g. by gravity, and the primal cut advanced against the stop for the process to be repeated. An example
15 of such a machine is shown in British Patent No. 1,057,052. Such machines do not give an entirely satisfactory product. The cleaving blade is thicker in its centre than at its edge,

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and this produces a curved portion. Secondly, when forming chops and similar "bone-in" portions, the cleaver tends to smash the bone, causing bone fragments to be found in the meat. Both of these factors are unpopular with consumers.

5 It is also known to make use of a conventional bandsaw (i.e. with a horizontal worktable and a blade band having a vertical operative portion) in cutting chops and the like, the operator manoeuvring the primal cut to and fro onto the blade band. This is dangerous for the operator since it is
10 impossible to fence the blade, and the rate of production is not very high.

It is therefore an object of the present invention to provide an improved apparatus for portioning meat. The invention also seeks to give good operator safety and prod-
15 uctivity.

The invention accordingly provides apparatus for portioning meat, comprising a bandsaw arranged with a horizontal cutting flight, a meat holder positioned above said flight for rotation about a vertical axis, the meat holder
20 being adapted to hold meat to be portioned substantially vertically at a position spaced from said axis, means for rotating the meat holder about said axis, and a depth stop below said flight, whereby the meat to be portioned is fed across said flight while resting on the depth stop by
25 rotation of the meat holder.

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An embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of apparatus in
5 accordance with the invention;

Figure 2 is a diagrammatic plan view on the line 2-2 of Figure 1; and

Figure 3 is a diagrammatic elevation on the line 3-3 of Figure 1.

10 The apparatus includes a substantially closed base 10. Within the base 10 a bandsaw blade 12 is arranged horizontally, the blade 12 passing around pulleys 14 journaled in the base 10. One of the pulleys 14 is driven by an electric motor 16 via a belt drive 18.

15 Two meat cylinder assemblies 20 are mounted on top of the base 10. Each assembly 20 includes a central tubular portion 22 and radial plate members 24 which are bent to form circumferential wings 26. Each tubular portion 22 is
28 received on a vertical shaft/and is drivingly coupled thereto
20 by means (not shown) such as interengaging shoulders. The shafts 28 are driven by respective electric motors 30 via belt drives 32. The cylinder assemblies 20 may thus be rotated over the plate 34 forming the top surface of the base 10.

25 Under part of the path of movement of each of the cylinder assemblies 20, the plate 34 is formed with

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respective apertures 36. A depth stop in the form of a plate 38 is provided under each aperture 36. Although not shown in the drawings, each plate 38 is suitably adjustable in the vertical direction.

5 As seen in Figure 2, in use primal cuts/⁴²of meat are loaded into the cylinder assemblies 20. Each cut is held in the space defined by the central portion 22 and one of the radial plates 24 and wings 26. A greater or smaller number of such spaces may be provided to suit the size of the cuts
10 being processed. As the assembly 20 rotates, the lower end of each cut in turn passes through the aperture 36 to a depth defined by the plate 38 and is moved by the rotation of the assembly 20 across the bandsaw blade 12 to sever a portion. The severed portion is delivered to the front of the
15 apparatus by sliding under gravity down a chute 40.

 The apparatus is conveniently operated by loading meat into one of the cylinder assemblies 20 while meat previously loaded into the other is being portioned. In this way a high rate of production is attained. A sliding cover 44 may be
20 moved to cover the assembly 20 in operation. Suitably, individual switches 46 are provided for the motors 30 driving the assemblies 20 to allow each of the latter to be halted while being loaded.

 It will be appreciated that the apparatus has a high
25 degree of safety since the bandsaw is virtually totally enclosed. The portions produced are flat and any bones

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therein are cleanly cut. The combination of a rotary meat holder with a bandsaw gives a high rate of production, which is further improved by the use of twin meat holders as described above.

5 It is of course possible to make modifications to the embodiment described within the scope of the appended claims. For example, a single electric motor may be used in conjunction with suitable mechanical transmission to drive the bandsaw and the cylindrical assemblies. The meat to be
10 portioned may be urged downwardly into contact with the depth stop by means such as a ram in addition to the force of gravity.

 Although described above with reference to primal cuts of meat, the invention may be used for portioning similar
15 comestible articles, such as frozen bodies of hamburger mixture.

PATENT CLAIMS

1. Apparatus for portioning meat characterised by a bandsaw (12) arranged with a horizontal cutting flight, a meat holder (20) positioned above said flight for rotation about a vertical axis, the meat holder being adapted to hold meat to be portioned substantially vertically at a position spaced from said axis drive means (30) for rotating the meat holder about said axis, and a depth stop (38) below said flight, whereby the meat to be portioned is fed across said flight while resting on the depth stop by rotation of the meat holder.
2. Apparatus according to claim 1 characterised in that the bandsaw (12) is totally enclosed except for an aperture (36) beneath the meat holder and above the depth stop.
3. Apparatus according to claim 1 or claim 2 characterised by a second meat holder (20) arranged in the same manner as the first-mentioned meat holder.
4. Apparatus according to any preceding claim characterised by a cover (44) arranged to enclose a meat holder (20) while meat therein is being portioned.
5. Apparatus according to any preceding claim characterised in that each holder (20) is adapted to hold a plurality of pieces of meat to be portioned at spaced circumferential locations.
6. Apparatus according to claim 5 characterised in that each meat holder (20) comprises an upright cylindrical assembly having a central hub portion (22), a plurality of radial planar

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walls (24) and circumferential wings (26) each extending from the outer end of a respective radial wall part-way towards an adjacent radial wall.



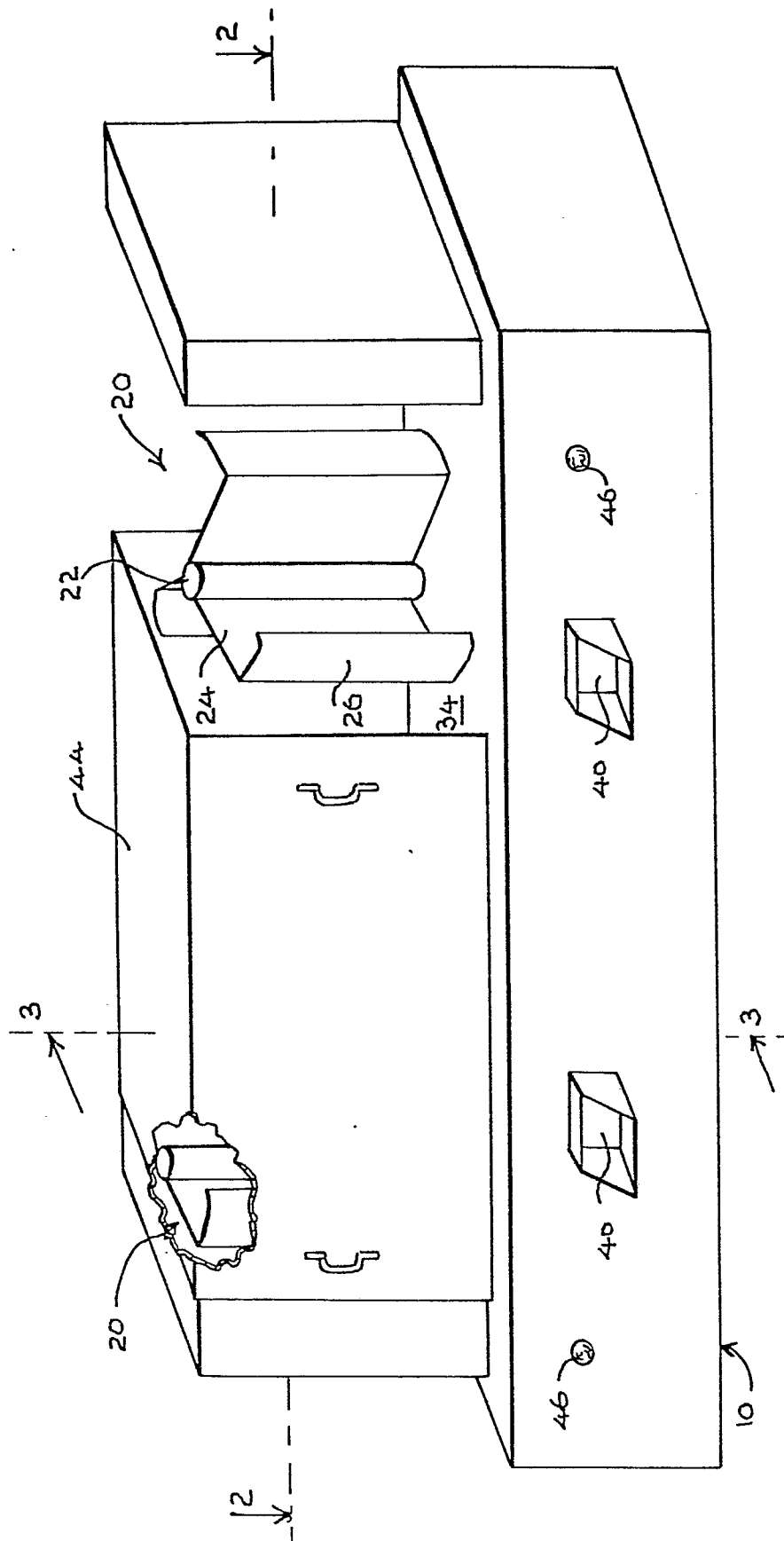


Fig. 1.

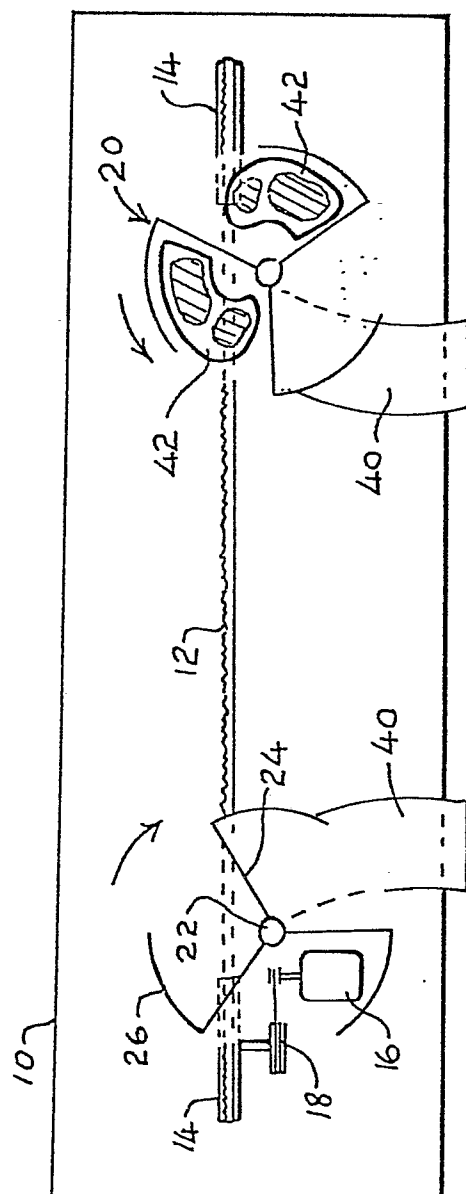


Fig. 2.

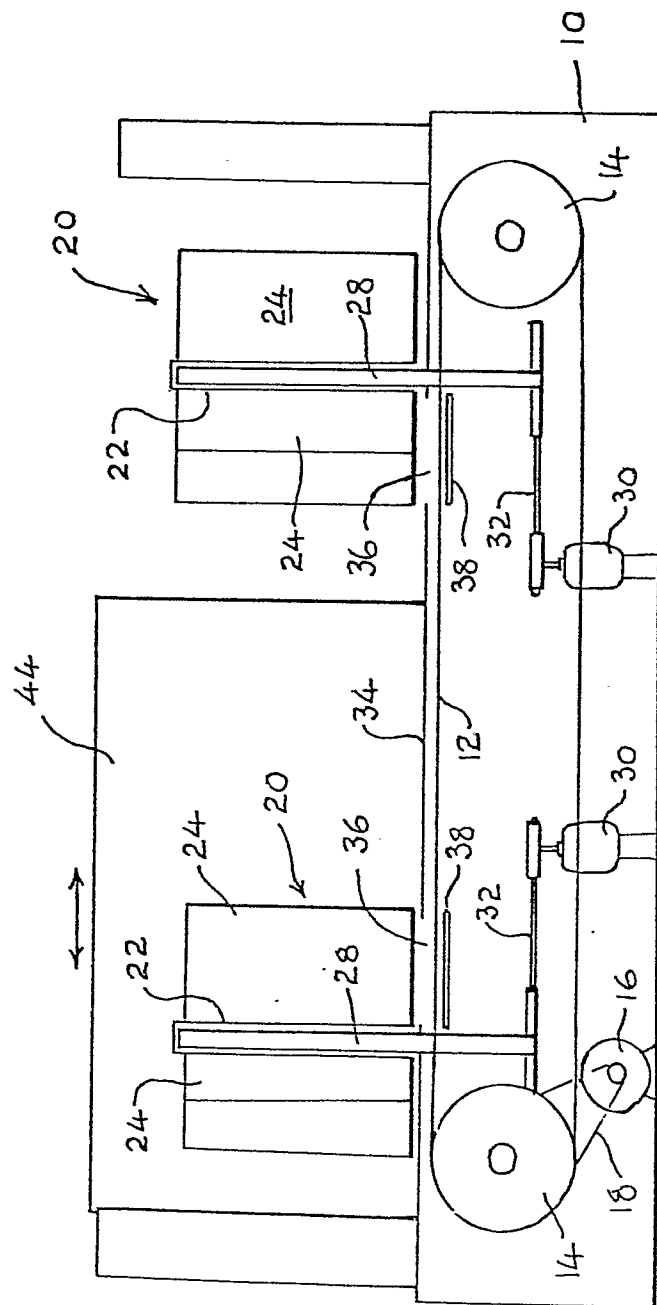


Fig. 3.



European Patent
Office

EUROPEAN SEARCH REPORT

0042462

Application number

EP 80 30 2111

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	<u>US - A - 4 050 339</u> (SOLERI) * the whole document *	1, 2, 5, 6	B 26 D 7/06 // B 26 D 1/46
A	<u>DE - B - 1 121 501</u> (REIFENHAUSER)		
A	<u>US - A - 3 888 151</u> (BECKERER)		
D	<u>GB - A - 1 057 052</u> (LARSSON) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl.)
			B 26 D
			CATEGORY OF CITED DOCUMENTS
			X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
☒ The present search report has been drawn up for all claims			&: member of the same patent family, corresponding document
Place of search The Hague		Date of completion of the search 26-02-1981	Examiner BERGHMANS