<table>
<thead>
<tr>
<th>Value</th>
<th>Line Widths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>1.45, 1.65, 2.0</td>
</tr>
<tr>
<td>1.1</td>
<td>1.36, 1.40, 1.8</td>
</tr>
<tr>
<td>1.25</td>
<td>1.4, 1.5</td>
</tr>
</tbody>
</table>

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A
We, JOHANNES CHRISTINA LANGEN and CHRISTIANUS PETRUS LANGEN, of 56 Jan Van Cuykstraat, Cuyk, The Netherlands, and 11, Zandkampen, Cuyk, The Netherlands, respectively, hereby apply for the grant of a standard patent for an invention entitled:

"METHOD AND DEVICE FOR COMPRESSING MEAT"

which is described in the accompanying Complete Specification.

Details of basic application:

Number: 957,350
Country: U.S.A.
Date: 3rd November, 1978.

Our address for service is:

SHELSTON WATERS
55 Clarence Street,
SYDNEY. N.S.W. 2000

DATED this 3rd day of SEPTEMBER, 1979.

JOHANNES CHRISTINA LANGEN AND CHRISTIANUS PETRUS LANGEN

by Robert J. Shelton
Fellow Institute of Patent Attorneys of Australia
of SHELSTON WATERS

To: The Commissioner of Patents,

WODEN. A.C.T. 2606

File: D.B. 157 (K) gf

Fee: $44.00
In support of the Convention Application for a patent for an invention entitled:

Title: "METHOD AND DEVICE FOR COMPRRESSING MEAT"

1. I am/We are the Applicant(s) for the Patent.
2. The basic Application(s) as defined by section 141 of the Act was/were made in (a) U.S.A. on the 3rd day of November, 1978.
3. I am/We are the actual Inventor(s) of the invention referred to in the basic Application(s) and the facts upon which I am/we are entitled to make the Application are as follows:
   4. The basic Application(s) referred to in paragraph 2 of this Declaration was/were the first Application(s) made in a Convention country in respect of the invention, the subject of the Application.

DECLARED at Cuyk, The Netherlands this fourth day of May 1979

Johannes Christina LANGEN

Christianus Petrus LANGEN

SHELSTON WATERS
PATENT ATTORNEYS
163 CLARENCE STREET, SYDNEY
1. A method of compressing meat characterized in that portions of meat are compressed into the desired shape during consecutive compression runs in two or more compression chambers, whilst the meat juice released during one compression run is added to a meat portion to be treated during a next compression run.

2. A device for carrying out the method claimed in claim 1 comprising at least two cylindrical compression chambers each having a lateral opening that can be closed and serves for the introduction of a meat portion, a wall portion movable in a radial guide for performing a compression run, an expulsion plunger axially movable through the cylinder and an outlet opening located opposite the expulsion plunger characterized in that the radial guide of the movable wall portion of one cylinder is in open communication with the other cylinder and conversely.
COMPLETE SPECIFICATION

FOR OFFICE USE:

Class

Int. Class

Priority

Art:

If Applicant: JOHANNES CHRISTINA LANGEN and CHRISTIANUS PETRUS LANGEN

of Applicant: 56, Jan van Cuykstraat, Cuyk, The Netherlands and 11, Zandkampen, Cuyk, The Netherlands, respectively.

Actual Inventor: JOHANNES CHRISTINA LANGEN and CHRISTIANUS PETRUS LANGEN.

Address for Service: Shelston Waters, 163 Clarence Street, Sydney

Complete Specification for the Invention entitled: "METHOD AND DEVICE FOR COMpressing MEAT"

The following statement is a full description of this invention, including the best method of performing it known to me/us:
The invention relates to a method and a device for compressing meat.

For compressing portions of meat, for example, in preparing canned ham it is common practice to use a device comprising one or more pressing cylinders. Individual amounts of meat are introduced into a cylinder, the capacity of which is reduced after which an expelling plunger pushes the compressed meat out of the cylinder through a guide channel into a can, a synthetic foil or the like. During this process a quantity of meat juice gets each time lost, which causes a substantial loss of weight and which is detrimental to the taste of the final product.

The invention has for its object to obviate
the aforesaid disadvantage and to prevent loss of meat juice.

This method is distinguished in that portions of meat are pressed in consecutive compression runs in two or more compression chambers into the desired shape, whilst the meat juice released during one compression run is added to a meat portion to be treated in the next compression run.

The device for carrying out said method comprises at least two cylindrical compression chambers, each of which has a lateral opening that can be closed for introducing a meat portion, a wall portion movable in a radial guide for performing the compression run, an expelling plunger axially movable through the cylinder and an outlet opening located opposite the expelling plunger, said device being distinguished in that the radial guide of the movable wall portion of one cylinder is in open communication with the other cylinder and conversely.

With this design particularly simple means permit of feeding the meat juice released from one cylinder into the other cylinder being in the filling position. It is not necessary to provide accurate reading between the movable wall portion of the cylinder and the guide, since the meat juice leaked away along the movable wall portion will be directly collected in the other compression chamber.

In a preferred embodiment the device is equipped with a bottom element provided with relatively spaced cylindrical wall portions, between which the complementary wall portions of the cylinders are adapted to reciprocate on the bottom element, whilst
a removable blocking element is arranged opposite the bottom element. In this embodiment the bottom element is the guide for the meat juice pushed by the wall portions displaceable thereon towards the cylinder concerned.

The reciprocatory complementary cylindrical wall portions are preferably formed by recesses in two opposite faces of a beam-shaped pressing member.

A particularly simple construction is obtained by constructing the bottom element in the form of a flat plate. This displacement of the beam-like pressing member can be performed by an eccentric disc arranged in said bottom plate. Thus the seal between the eccentric disc and the bottom plate required for preventing leakage of meat juice can be readily ensured.

The blocking element located opposite the bottom element has in a preferred embodiment the shape of a plate adapted to pivot about an axially directed axis located midway between the upwardly extending wall portions. When one compression cylinder is closed, the other compression cylinder is automatically released for receiving meat portions. By tilting over or turning the closing plate towards the other cylinder the first cylinder is again automatically released.

The invention will be described more fully hereinafter with reference to an embodiment. The drawings shows in fig.1 a plan view of the meat press in accordance with the invention, fig.2 a side elevation of the device of fig.1,
The device shown in the figures comprises a cabinet-like substructure 1 standing on four legs 2. On top of the cabinet 1 two cylindrical compression chambers 3 are arranged side by side and parallel to one another, an expelling plunger 4 being axially movable in each cylinder towards an opposite outlet aperture 5. The plunger 4 is reciprocated by means of a pneumatic cylinder 6 arranged on the left-hand side of the compression chambers 3 above the cabinet-like substructure 1. The outlet aperture of each compression chamber 3 is prolonged by a tubular stub 7, along the outer circumference of which a ring 8 can be shifted in an axial sense, to which ring tags 9 are secured. These tags serve to facilitate positioning of a tubular synthetic foil or artificial casing around the stub 7 for receiving the compressed meat portion. Each ring 8 is shifted to and fro by means of a lever 36, the lower end of which is pivoted to the frame 1 and which is actuated by an associated pneumatic cylinder 37. These weighing cylinders are controlled by means of a control knob 38.

There now follows a description of the compression chamber section proposed by the invention; this section is shown in detail in figure 4. The section comprises a bottom plate 10, along the longitudinal edges of which a beam-like element 11 is arranged, the surfaces of the beams 11 facing one another forming a cylindrical sheath 12.
Between these beam-like elements 11 a displaceable, beam-like element 13 can be shifted to and fro in the direction of the arrow P between the stationary longitudinal beams 11. The remote surfaces of the beam-like element 13 exhibit a cylindrical shape 14 complementary to the cylindrical wall portions 12 so that in the closed state of the compression chamber 3, as shown on the right-hand side of figure 4, a substantially circular cross-section is obtained. This circular cross-section corresponds with that of the outlet stub 7 and with that of the outer circumference of the expulsion plunger 4.

Opposite the bottom plate 10 a blocking element 15 is arranged so as to be tiltable about an axially extending shaft 20 through 180° from the position shown in figure 4 towards the left-hand beam-like element 11. For this purpose the edge portion of the plate 15 remote from the shaft 20 is equipped with a handle 16, which is pivotable with respect to the plate 15 near the shaft 17. The handle 16 is provided with lugs 18 snapping into fixed stops 19 on the outer side of the beam-like elements 11 in the closed state. Figures 1 and 2 show the plate-shaped blocking element 15 in the vertical position.

In order to permit shifting to and fro the beam-like pressing member 13 in the direction of the arrow P the bottom plate 10 includes two round discs 21. Between the outer circumference of the disc 21 and the circular hole in the bottom plate 10 is provided a fluid-tight seal 22. The plate 21 is provided at an eccentric point with a pin 23 pressed in the plate and projecting on top into a
sliding member 24 which is adapted to reciprocate in a slot-like cavity 25 in the pressing member 13 (see also figure 1). On the bottom side the pin 23 is held in a flange 26, which is coaxial with the disc 21 and which is fixed by means of bearings 27 in a frame portion 28 located between the cabinet-like substructure 1 and the bottom plate 10.

The flange 26 is prolonged downwardly by a hub-like portion 29, which is rotatably supported by means of bearings 30 in a sleeve-like frame portion 31 extending into the cabinet-like substructure 1.

The bottom side of the hub-like portion 29 is fastened to a lever 32, which can be turned through a given angle by means of a push rod 33 pivoted to said lever. The push rod 33 is actuated by a pneumatic cylinder 34 arranged in the cabinet-like substructure 1 (see figure 2).

An additional fastening element is formed by a pin 35 between the flange 26 and the plate 21.

The device operates as follows:

an operator slips a sleeve of a synthetic foil on the tags 9 occupying the extended position i.e. the upper position in figure 1. By turning over the handle 38 the tags are slid back into the lower position (figure 1) so that the synthetic foil is slipped onto the tubular stub 7.

A further operator has in the meantime filled the opened compression chamber with meat i.e. the left hand compression chamber of figure 4. Subsequently he moves the blocking element 15 to the left in figure 4 and thus closes the top side of the left hand
compression chamber. By energizing the cylinder 24 the rod 33 and hence the levers 32 are displaced so that each hub 29 with the flange 26 fastened thereto will turn through a given angle. The flange 26 moves along the plate 21 so that the pin 23 traces a circular path whilst catching along the sliding member 24. As a result of the displacement of the sliding member 24 in the slot 25 the pressing beam 13 will shift to the left in figure 4 so that the compression chamber 3 is narrowed. The meat portion is shaped into a form matching the inner circumference of the compression chamber and in the extreme position of the pressing beam 13 the cylinder 6 is energized and the expulsion plunger expels the cylindrically shaped meat portion through the tubular stub 7 into the sleeve slipped onto the same.

The meat juice released during this pressing run will flow away through the gaps between the bottom element 10 and the pressing element 13 and between the pressing element 13 and the top plate 15 respectively towards the right-hand compression chamber in figure 4. This right-hand compression chamber 3 is now in the filling position so that the juice is mixed with the meat portion during the next processing run.

The next processing run is performed in the manner described above by slipping a synthetic sleeve onto the other tubular stub 7, by tilting back the plate shaped cover 15 through 180° and by energizing the cylinder 34 in the opposite sense so that the pressing beam 13 will move to the right in figure 4 into the position shown herein.
Again meat juice will be released and flow through the aforesaid gaps to the left into the left-hand compression chamber.

It will be obvious that the packing between the pressing beam 13 and the top and bottom plates 10 and 15 respectively need not be accurate. Moreover it will be obvious that not any quantity of meat juice gets lost.

The invention is not limited to the embodiment described above. For example, the bottom plate 10 need not be flat and it may have a curved shape. Moreover a large number of compression chambers may be arranged side by side and it may be imagined to provide a larger number of pressing beams 13 of the shape shown in figure 4 side by side between the upright wall portions 11, in which case two or more pressing beams 13 may, in common, form a compression chamber between them.

Although in this device pneumatic control of the various parts resulting in particularly heavy compression forces with the eccentric disc 21 and the leverage 32 is used, other, for example, electrical or hydraulical drives may be employed.

For the sake of completeness it is noted that the closing plate 15 may be made of transparent material so that the operator can survey the compression effect of a meat portion.
The claims defining the invention are as follows:

1. A method of compressing meat characterized in that portions of meat are compressed into the desired shape during consecutive compression runs in two or more compression chambers, whilst the meat juice released during one compression run is added to a meat portion to be treated during a next compression run.

2. A device for carrying out the method claimed in claim 1 comprising at least two cylindrical compression chambers each having a lateral opening that can be closed and serves for the introduction of a meat portion, a wall portion movable in a radial guide for performing a compression run, an expulsion plunger axially movable through the cylinder and an outlet opening located opposite the expulsion plunger characterized in that the radial guide of the movable wall portion of one cylinder is in open communication with the other cylinder and conversely.

3. A device as claimed in claim 2 characterized by a bottom element with beam-like bodies arranged at a fixed distance from one another, whose opposite faces form a cylindrical sheath plane and by cylindrical wall portions complementary to the cylindrical sheath plane and adapted to slide to and fro between said beams on the bottom element as well as by a removable blocking element located opposite the bottom element and adapted to cover the cylindrical wall.
portions and the beam-like bodies.

4. A device as claimed in claims 2 and 3 characterized in that the reciprocatory cylindrical wall portions are formed by recesses in two opposite faces of a beam-like pressing member.

5. A device as claimed in claims 2 to 4, characterized in that the bottom element is formed by a flat plate.

6. A device as claimed in claims 2 to 5, characterized in that the beam-like pressing member is displaceable by means of an eccentric disc arranged in the bottom plate.

7. A device as claimed in claims 2 to 6, characterized in that the eccentric disc can be turned through a given angle by means of a lever actuated by a pneumatic cylinder.

8. A device as claimed in anyone of the preceding claims 2 to 7 characterized in that the blocking element is formed by a plate adapted to pivot about an axis located midway between the upright wall portions.

9. A device as claimed in claim 8, characterized in that the closing plate is made from transparent material.

DATED this 3rd day of SEPTEMBER, 1979.

JOHANNES CHRISTINA LANGEN AND CHRISTIANUS LANGEN