



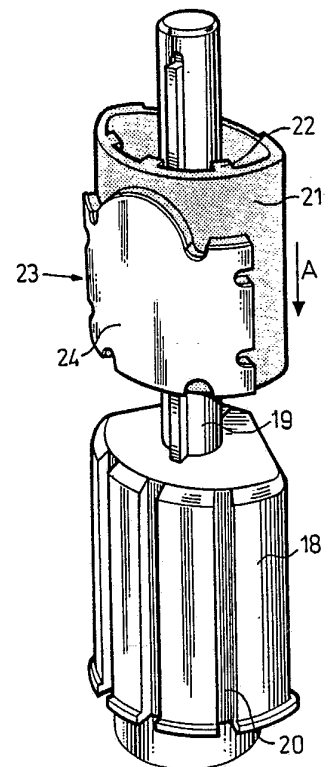
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁵ : B65C 9/22, 9/36</p>	<p>A1</p>	<p>(11) International Publication Number: WO 93/08083 (43) International Publication Date: 29 April 1993 (29.04.93)</p>
<p>(21) International Application Number: PCT/SE92/00719 (22) International Filing Date: 13 October 1992 (13.10.92) (30) Priority data: 9103027-0 17 October 1991 (17.10.91) SE (71)(72) Applicant and Inventor: TRYGG, Lars, Erik [SE/SE]; Box 243, S-372 24 Karlshamn (SE). (74) Agents: AXELSSON, Rolf et al.; Kransell & Wennborg AB, Box 27834, S-115 93 Stockholm (SE). (81) Designated States: CA, CS, HU, JP, KR, PL, US, Euro- pean patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE).</p>		<p>Published <i>With international search report.</i></p>

(54) Title: A GLUING PALETTE AND A GLUE-TRANSFER PART FOR USE THEREWITH

(57) Abstract

A gluing palette for use with apparatus for gluing labels to objects, such as bottles or the like. The palette is intended to coact with a rotary gluing roller so as to be coated with glue and then to transfer glue to a label transported by the palette from a label magazine to a transfer device. The transfer device is intended to take the glue-coated label from the palette and to press the label against the object concerned. The palette includes a core (18) and a carrier which is fitted to the core and can be readily detached therefrom. The carrier has the form of a pliable apron-like element (21) which will mould itself to the configuration of the core (18) and which is provided with at least one outwardly projecting part (23) made of an elastic material. This outwardly projecting part has a shape which corresponds essentially to the shape of the label to be coated with glue.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	FR	France	MR	Mauritania
AU	Australia	GA	Gabon	MW	Malawi
BB	Barbados	GB	United Kingdom	NL	Netherlands
BE	Belgium	GN	Guinea	NO	Norway
BF	Burkina Faso	GR	Greece	NZ	New Zealand
BG	Bulgaria	HU	Hungary	PL	Poland
BJ	Benin	IE	Ireland	PT	Portugal
BR	Brazil	IT	Italy	RO	Romania
CA	Canada	JP	Japan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	LI	Licchtenstein	SK	Slovak Republic
CI	Côte d'Ivoire	LK	Sri Lanka	SN	Senegal
CM	Cameroon	LU	Luxembourg	SU	Soviet Union
CS	Czechoslovakia	MC	Monaco	TD	Chad
CZ	Czech Republic	MG	Madagascar	TG	Togo
DE	Germany	ML	Mali	UA	Ukraine
DK	Denmark	MN	Mongolia	US	United States of America
ES	Spain			VN	Viet Nam
FI	Finland				

A Gluing Palette and a Glue-Transfer Part
for Use Therewith

The present invention relates to a gluing palette for use
5 with machines in an arrangement intended for gluing labels
to objects, such as bottles or the like, said palette
being intended to coact with a rotating gluing roller such
as to be coated with glue and thereafter to transfer glue
to a label which is transported by the palette from a
10 label magazine to a label transfer means which is intended
to transfer the glued label from the palette and to press
the label onto the object or article concerned. The inven-
tion also relates to a glue transfer part intended for
coaction with one such palette.

15

Devices of the aforescribed kind are used, among other
things, to apply labels to bottles in breweries, soft-
drink bottling plants and like plants, which require the
labelling devices to operate at high speed. The majority
20 of these devices include a rubber gluing roller, aluminium
gluing palettes and an adjustable glue scraper which is
operative in determining the thickness of the glue on the
gluing roller.

25 These known devices must be produced with extreme accuracy
and any subsequent adjustments to the devices in operation
must be effected very precisely, since, for instance, the
gluing palettes may only partially penetrate the glue
layer on the gluing roller without making contact with the
30 outer surface of the roller itself, since such contact
would force the glue layer carried by the roller out onto
the edges of the palette. This would cause glue to splash
or squirt onto the palette surroundings, and would also
result in glue fastening to the front side of the labels,
35 causing the labels to be drawn-off the bottles. Loose
labels which fasten to the gluing roller are difficult to

remove and may result in damage to the roller, particularly when using foil labels, since such labels can cause wear on the roller when fastening between the glue scraper and the roller. A certain amount of wear can also be
5 caused when the operator scrapes away labels that have fastened to the gluing roller with the aid of a sharp tool.

These and other problems are solved by means of the invention described in my coterminous Swedish Patent Application No. 9103026-2. According to this invention, there is used a modified form of gluing roller which permits the palettes to make contact with the outer surface of the roller, therewith avoiding the necessity of extremely
15 narrow tolerances required by the known devices, with which the palette may only partially penetrate the actual glue layer itself without contact with the roller surface. To this end, the outer cylindrical surface of the gluing roller is provided with grooves that are filled with glue.
20 Consequently, even if the gluing palettes make physical contact with the surface of the roller, they will not force-out glue which is liable to penetrate onto the side edges of the palettes. In order to ensure that the palettes will come into contact with the glue present in the
25 grooves, at least the surface layers of the palettes which coact with the gluing roller are made of a slightly elastic or resilient material which will enable parts of said outer layer to be pressed into the grooves. The ridges that extend between the grooves in the gluing roller, are
30 kept clean from glue with the aid of a glue-scraper coacting with said ridges.

Gluing palettes are normally made of aluminium, which is molded to the desired shape, and comprise a mount and a
35 glue-transfer surface connecting with the mount. The shape or configuration of the glue-transfer surface shall corre-

spond to the label to be coated with glue, which requires the aluminium palette to be machined or otherwise worked. The glue-transfer surface shall be slightly cupped in one direction, similar to a part of the cylindrical surface of a cylinder, so as to be able to roll on the rubber surface of the rotating gluing roller, and must therefore be machined to precise tolerances.

With the intention of reducing wear on the rubber surface of the gluing roller, among other things when using metal foil labels, there have earlier been used planar steel rollers and rubber pads which have been firmly vulcanized to the aluminium palettes. These rubber-covered palettes, however, have not been intended to make contact with the smooth roller surface, or cannot be permitted to make such contact, but have solely been permitted to partially penetrate the glue layer on the outer surface of the roller, and consequently this arrangement has the drawbacks described in the foregoing.

Naturally, such known gluing palettes could be used in the machine described in my aforementioned patent application. However, these palettes are relatively expensive to produce, and the use of aluminium palettes of known construction also results in other drawbacks. For instance, aluminium palettes are relatively sensitive to knocks and blows and other careless handling when washing and cleaning the palettes. When the fit between fingers in the label magazine or the label-transfer device and corresponding recesses in the palette is incorrect, the fingers and/or the palette are likely to be seriously damaged upon contact between the fingers and the hard aluminium palette. When such a palette is damaged, it is normally necessary to replace the entire palette, which is expensive. The replacement of damaged fingers is also expensive. Some known palettes are also firmly mounted on associated shafts,

which means that larger and heavier units must be handled and replaced respectively. Furthermore, the curvature of the cylindrical surfaces of the palettes must be adapted precisely to the particular machine with which they shall
5 be used and, consequently, the same palettes cannot be used as spares for machines which originate from different manufacturers, since the palette curvature may be different with different machines.

10 A prime object of the present invention is to provide a gluing palette with which the aforesaid drawbacks are eliminated, or at least greatly reduced, among other things.

15 The invention is based on the realization that this object can be achieved by instead of giving the glue-transfer surface of the palette the form of a part of a supporting aluminium palette and coating this part with a resilient material, the surface can be constructed in the form of an
20 outwardly projecting, resilient part of a plate which can be fitted detachably to a rigid support surface.

According to the present invention, a gluing palette of the kind defined in the first paragraph of this document
25 is particularly characterized in that it includes a core and a carrier in the form of a readily detachable, pliable apron-like element which extend around at least part of the core circumference and which will mould itself to the shape of said core and is provided with at least one
30 outwardly projecting elastic part, the shape of said part corresponding essentially to the shape of the label to which glue shall be applied.

Thus, the core of such a gluing palette need not be shaped
35 in dependence on the application concerned, since the shape of the label need only be reflected in the shape of

the elastic outwardly projecting part. Because the flexible plate can be readily exchanged, the palette can be readily adapted for applying glue to desired labels and the glue-transfer surface can be readily replaced in the event of damage. Thus, as spare parts, there need only be stored a number of plates intended for desired labels, and these plates can be manufactured at low cost. The same plates can therewith be used for different machines, since because of their flexibility the plates can be attached to palette cores of slightly different radius of curvature, without creating problems.

In order to enable the flexible plates to be fitted and replaced readily and simply, each of the plates is conveniently constructed in the form of a part of a flexible sleeve which surrounds the palette core. In this regard, the sleeve is intended to be drawn over the palette core from one end of said core and can be fixed correctly in position with the aid of grooves formed in the palette core, or in the inner surface of the sleeve, which coact with projections provided on the opposite part.

The flexible plate may be made of an elastic material, preferably silicone rubber, and the outwardly projecting part may have a surface layer whose degree of elasticity is lower than the elasticity of the remaining material. Preferably, the palette core is comprised of a part of an extruded element, suitably a plastic or aluminium element, and is given a curvature which is adapted to the specific machine concerned. These palette cores need not be replaced when changing to labels of a different configuration, since all that is necessary is to fit another flexible sleeve to the palette cores.

The particular characteristic features of a glue-transfer part for coaction with an inventive gluing palette are set

forth in Claims 9 and 10.

The invention will now be described in more detail with
reference to exemplifying embodiments thereof illustrated
5 in the accompanying drawings, in which

Figure 1 is a top view of an inventive labelling machine;

10 Figure 2 is a side view of the machine shown in Figure 1;

Figure 3 illustrates the construction of one embodiment of
an inventive gluing palette; and

15 Figure 4 illustrates the gluing palette of Figure 3 when
assembled.

20 Figures 1 and 2 illustrate a vertically orientated, rotat-
able gluing roller whose cylindrical outer surface, or
mantle surface, is made of a hard material and is provided
with helical grooves 2 which are mutually separated by
ridges 3, conveniently planar ridges. The grooves are kept
filled with glue, which is delivered to the grooves
through an upper nozzle 4 and distributed within the
grooves and scraped from the ridges with the aid of a
25 vertically oriented glue scraper 5, which resiliently
abuts the ridges 3 separating the grooves 2 in the mantle
surface of the roller 1, so as to keep the ridges free
from glue.

30 Also shown in Figures 1 and 2 is a carousel 6 which, in
the illustrated embodiment, is provided with three gluing
palettes 7, each of which is rotatable about an associated
rotary shaft 8. The carousel 6 as a whole rotates about a
centre shaft 9.

35 The reference numeral 10 identifies a magazine for labels

11, and the reference numeral 12 identifies a rotary gripping cylinder provided with foam-rubber pads 13 and label-gripping devices. The reference numeral 14 identifies a carousel for bottles 15 to be labelled with labels taken
5 from the magazine 10. The entire machine is shown supported on a stand structure 16, which includes a gearbox having appropriate output shafts for effecting the various rotational movements of the active components.

10 When the aforescribed arrangement is in operation, each gluing palette 7 will pivot in relation to the gluing roller 1, in a conventional manner as the carousel 6 rotates, so that a layer of glue is applied to respective palettes 7 as they pass the roller. The palette then per-
15 forms a corresponding movement as it passes the label magazine 10, wherein the first of the labels 11 in the magazine 10, in which the rear sides of the labels faces forwards, fastens temporarily to the palette 7. When the label arrives at the gripping cylinder 12, during rotation
20 of the carousel 6, the gripping devices in coaction with a foam-rubber pad 13 take the label from the palette 7 and, as the cylinder 12 rotates, press the glue-coated surface of the label against the appropriate bottle 15 on the bottle carousel 14, in a conventional manner. Transfer of
25 the label from the palette 7 to the gripping cylinder 12 and pressing of the label onto the bottle 15 may also take place in a conventional manner.

The gluing roller of the described arrangement is provided
30 with grooves which, among other things, allow the gluing palette 7 to make contact with the roller and to perform a rolling motion in relation to said roller without glue being pressed out onto the edges of the palettes, since the glue scraper 5 can lie lightly against the ridges 3
35 between the grooves 2 and therewith keep the ridges 3 free from glue. This greatly reduces the necessary manufactur-

ing and adjustment tolerances, therewith, among other things, reducing manufacturing costs and operating costs and also providing a much more reliable arrangement, besides ensuring a good result.

5

In order to ensure that the gluing palettes 7 become coated with glue upon contact with the roller 1, the palettes are provided with an elastic outer layer which when pressed against the roller will penetrate partially into the glue-filled grooves thereon.

10

It is preferred that the grooves 2 on the roller 1 have the form of helical grooves, meaning, among other things, that a label or some other object which has fastened to the roller will automatically be "screwed" down along the roller in coaction with the scraper 5. The roller is thus self-cleaning, which is to great advantage. Scrap and surplus glue can be collected at the lower end of the roller.

20

In order to avoid the ridges 3 between the grooves 2 of the gluing roller from becoming coated with glue, the gluing palettes 7 will preferably coact with essentially the same surface of the gluing roller on each rolling occasion. However, in order to avoid uneven wear on the surface layer of the gluing palettes, it is preferred that the rolling surface is displaced slightly between each successive contact of a gluing palette with the roller. To this end, the speed at which the gluing roller rotates is adapted in relation to the working cycle of the gluing palettes, so that the roller will not rotate through a complete revolution or several complete revolutions between each rolling movement of a palette. It is necessary, however, for the peripheral speeds of the roller and the palette to essentially coincide.

35

The rotational speed of the gluing roller and the pitch of the glue-grooves are suitably selected so that the ridge-surfaces which come into contact with respective gluing palettes are displaced slightly downwards on the palette
5 between successive contacts therewith. This displacement may be in the order of some hundredths of a millimeter between each contact occasion.

The grooves 2 provided in the gluing roller may be relatively shallow, in the order of some tenths of a millimeter, depending on the desired thickness of the glue layer and also on the quality of the glue used. The grooves may have a width of some millimeters, depending on the size of the label surface that need be coated with glue. By allow-
10 ing the pitch of the grooves to vary along the roller, it is possible to vary the quantity of glue applied between different parts of a label or between different labels located at different heights on the object to be labelled. In addition to helical grooves, horizontal, circum-
15 ferential grooves may also be used, wherein the pitch or division between these grooves can be varied as desired.
20

Figures 3 and 4 illustrate an exemplifying embodiment of an inventive gluing palette intended to form part of the
25 aforescribed arrangement, said palettes being shown in more detail. The illustrated palette comprises a core 18 which may be comprised of a part of an extruded plastic or aluminium body. The core has a curved mantle surface whose radius of curvature is adapted to the machine concerned.
30 The core is affixed to a shaft 19 by means of a key-way and the shaft is intended to be fitted to the carousel 6. In the case of the illustrated embodiment, the mantle surface of the core 18 is provided with longitudinally extending grooves 20 by means of which a flexible or
35 pliable sleeve 21 can be pre-fitted in a precisely determined position in relation to the core 18, by drawing the

sleeve down over the core in the direction of arrow A. The inner surface of the sleeve is provided with ridges 22 which coact with the grooves 20 in a manner to lock the sleeve to the core. These ridges also prevent the front surface of the sleeve from stretching and all stretch in the sleeve takes place essentially in the rear part thereof.

The flexible sleeve 21 is made of a relatively elastic material, such as silicone rubber having a hardness of 40-50 Shore. A rubber sleeve of this kind will readily conform or mould itself to the shape of the mantle surface of the core 18, and hence one and the same rubber sleeve can be used for cores of slightly different curvature and adapted for different machines. The rearward part of the sleeve is preferably thinner than the forward part thereof, so as to concentrate stretching of the sleeve to the rear part of the sleeve.

The sleeve 21 has an outwardly projecting part 23 whose shape corresponds to the shape of the label for which the palette is intended. The outwardly projecting part 23 thus replaces the earlier aluminium palettes molded to desired shapes, the surfaces of which palettes may possibly have a rubber layer vulcanized thereon. Recesses or apertures in the edges of the outwardly projecting part 23 correspond to similar recesses or apertures in earlier aluminium palettes and are intended to receive fingers provided in the label magazine and on the gripping cylinder respectively.

Figure 4 illustrates the assembled palette, subsequent to drawing the rubber sleeve 21 down over the core 18. The outwardly projecting part 23, which corresponds in form to the label to be applied, will therewith have the desired radius of curvature. Because of the elasticity of the

sleeve 21, the sleeve may be affixed to the core 18 even without the provision of mutually coacting grooves and ridges. Alternatively, other fixating means may also be used, of course.

5

Because the sleeve 21 and the outwardly projecting part 23 are made of an elastic material, small abrupt throws made by the palette as the machine operates, for instance throws caused by faulty journals, can be accepted since
10 such abrupt movements can be taken-up by compression of the elastic material upon contact with the gluing roller. This applies particularly when a relatively elastic material is used. It may therefore be suitable to form a surface layer 24 on the outwardly projecting part of a
15 somewhat harder material, so that this part will not penetrate the grooves in the gluing roller to an unnecessary depth and therewith force glue from the grooves. This somewhat harder surface layer, although still elastic, may, for instance, have a thickness of 2 mm, wherein the
20 remainder of the sleeve may be made of a material which is more elastic than said surface layer.

A gluing palette constructed in accordance with the foregoing affords several advantages. Among other things, only
25 the cores 18 need be manufactured especially for particular machines, since one and the same elastic sleeve 21 can be used on cores of slightly differing configurations. Should the outwardly projecting part which is intended to make contact with the labels become damaged, it is only
30 necessary to replace the sleeve, which can be done very simply and quickly. The cost of spare sleeves is also very low, since they can be easily mass-produced. Furthermore, a single rubber sleeve 21 may be provided with several superposed outwardly projecting parts for gluing several
35 labels simultaneously, these labels being intended to be stuck at different levels on an object. The palettes are

also less sensitive than the earlier used aluminium pa-
lettes and are easy to clean. Rubber palettes of the
aforescribed kind can thus also be used advantageously
with earlier known machines equipped with smooth gluing
5 rollers. Similar to earlier known aluminium palettes, the
rubber palettes can be adapted to different label maga-
zines and also to the configuration of the gripping devi-
ces of the gripping cylinder.

10 It will be understood that the aforescribed embodiment
of an inventive gluing palette can be varied in several
respects. For example, the core 18 may be given any de-
sired configuration, since its only requirement is to
provide a support for the outwardly projecting part of the
15 elastic sleeve. Although the use of an elastic sleeve will
afford important advantages, it is also conceivable to use
a flexible sleeve which will conform or mould itself to
the configuration of the core and which is provided with
an elastic, outwardly projecting part. Instead of a sleeve
20 21, there may be used an elastic apron-like element which
is provided with an outwardly projecting, elastic part and
which will embrace the core at least partially provided
that said apron-like part can be fixed to the core in a
manner which will enable said apron-like part to be readi-
25 ly replaced and stay securely on the core. This apron-like
part may be affixed to the core, for instance, with the
aid of one or more elastic bands, or tightenable bands
which encircle the core. Alternatively, the flexible
apron-like part may be dimensioned so that it will embrace
30 the core around its full circumference so that it can be
fixed on the rear side of the core with the aid of faste-
ner hooks.

CLAIMS

1. A gluing palette for use with machines intended for
gluing labels to objects, such as bottles or the like,
5 said palette being intended to coact with a rotating
gluing roller (1) so as to be coated with glue and then to
transfer glue to a label (11) transported by the palette
(7) from a label magazine (10) to a transfer device (12)
10 which is intended to take the glue-coated label from the
palette and to press the label against the object (15)
concerned, **c h a r a c t e r i z e d** in that the palette
includes a core (18) and a carrier in the form of a readi-
ly detachable, pliable apron-like element (21) which will
15 extend around at least part of the core circumference and
which will mould itself to the con-figuration of said
core, wherein said apron-like part is provided with at
least one outwardly projecting part (3) which is made of
an elastic material and the shape of which corresponds
20 essentially to the shape of the label (11) to be coated
with glue.

2. A gluing palette according to Claim 1, **c h a r -**
a c t e r i z e d in that the apron-like element forms
part of a flexible sleeve (21) which embraces the core
25 (18).

3. A gluing palette according to Claim 2, **c h a r -**
a c t e r i z e d in that the sleeve (21) is intended to
be drawn over the core (18) from one end thereof; and in
30 that the sleeve is fixed correctly in position on the core
(18) with the aid of grooves (20) which are formed either
in the core or the inner surface of the sleeve and which
coact with projections (22) provided on the sleeve or on
the core.

35

4. A gluing palette according to Claim 1, **c h a r -**

a c t e r i z e d in that the apron-like element (21) is provided with means for coaction with fastener means on the rear side of the core (18).

- 5 5. A gluing palette according to any one of Claims 1-4, c h a r a c t e r i z e d in that the apron-like element is also made of an elastic material, preferably silicone rubber.
- 10 6. A gluing palette according to Claim 5, c h a r - a c t e r i z e d in that the outwardly projecting part (23) of the elastic material has a surface layer (24) whose elasticity is lower than the elasticity of the remainder of the material.
- 15 7. A gluing palette according to any one of Claims 1-6, c h a r a c t e r i z e d in that the outwardly projecting part (23) is provided with recesses for accommodating fingers in the label magazine (10) and in the
- 20 aforesaid transfer means (12).
8. A gluing palette according to any one of Claims 1-7, c h a r a c t e r i z e d in that the core (18) is comprised of part of an extruded body, suitably an extru-
- 25 ded plastic or aluminium body.
9. A glue-transfer part of a gluing palette for use in machines intended for gluing labels to objects, such as bottles or the like, said palette (7) being intended to
- 30 coact with a rotary gluing roller (1) so as to be coated with glue and thereafter to transfer glue to a label (11) carried by the palette from a label magazine (10) to a transfer device (12) which is intended to take the glue-coated label from the palette and press the label
- 35 against the object (15) concerned, c h a r a c - t e r i z e d in that said glue transferring part has the

form of a flexible sleeve (21) which is intended to embrace a palette core (18); and in that the sleeve (21) has an outwardly projecting part (23) which is made of an elastic material and whose form corresponds essentially to the form of the label (11) to be coated with glue.

10. A glue transfer part according to Claim 9, characterized in that the sleeve (21) is also made of an elastic material; and in that the outwardly projecting part (23) has a surface layer (24) whose elasticity is lower than the elasticity of the remainder of said material.

1/2

Fig. 1

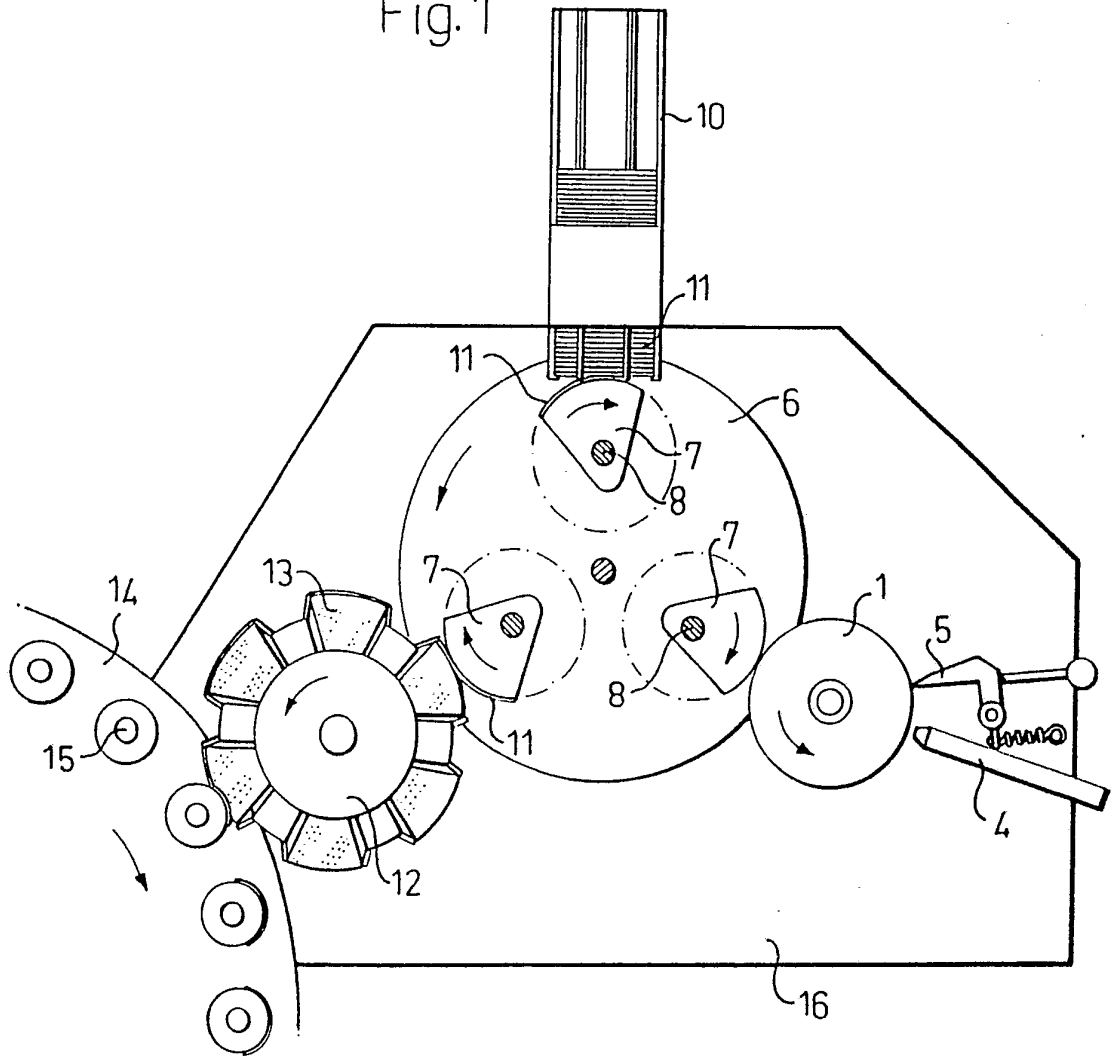


Fig. 2

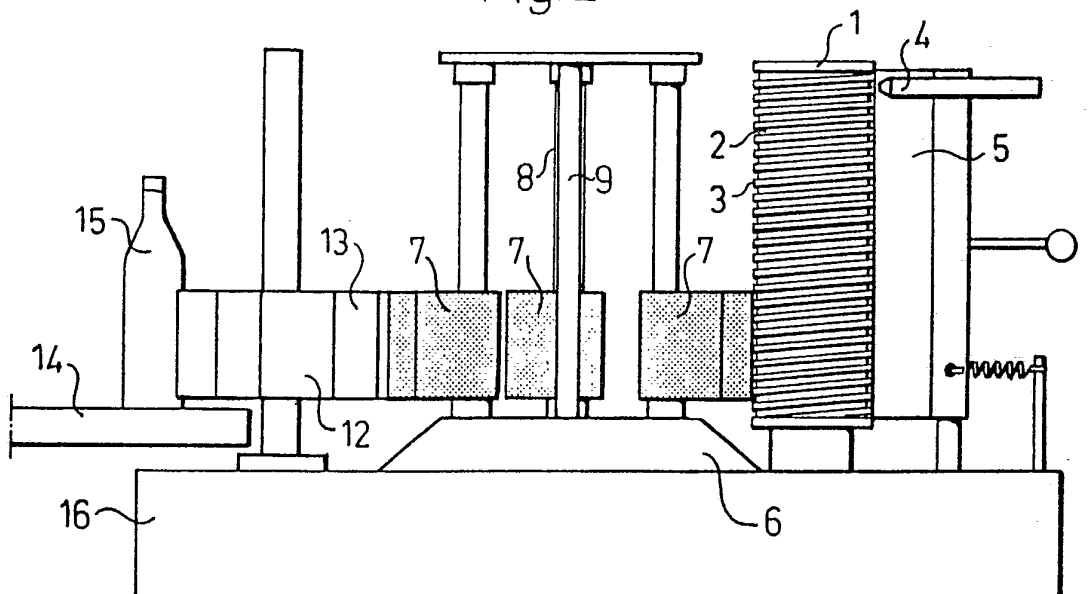


Fig. 3

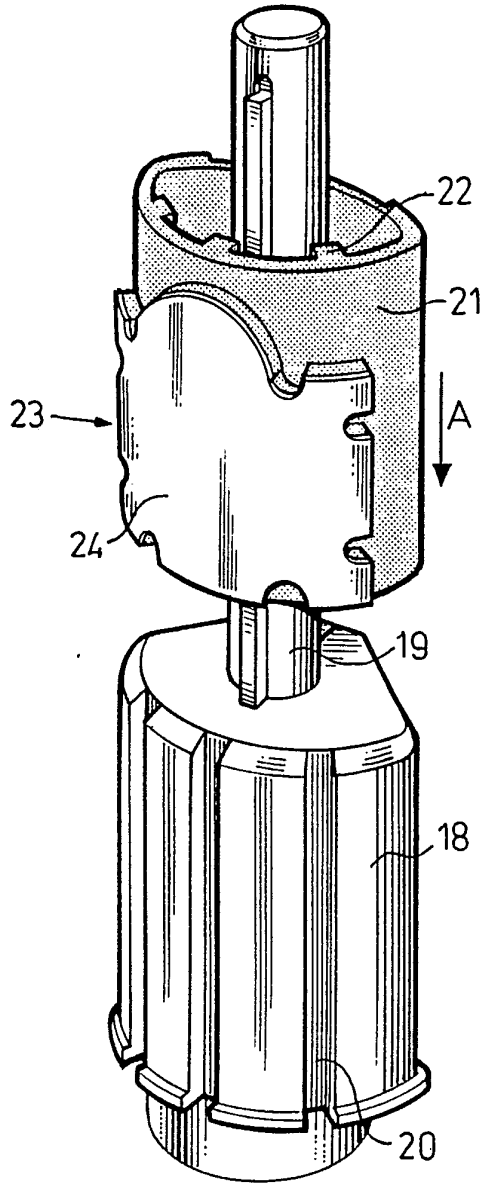
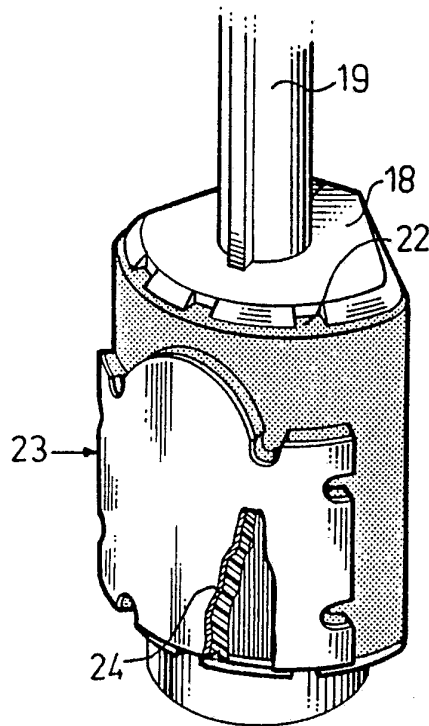


Fig. 4



INTERNATIONAL SEARCH REPORT

International Application No **PCT/SE 92/00719**

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC IPC5: B65C 9/22, B65C 9/36		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
IPC5	B65C	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in Fields Searched ⁸		
SE,DK,FI,NO classes as above		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category *	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
A	US, A, 3865671 (H. KRONSDER) 11 February 1975, see column 4, line 32 - line 44; figure 7 --	1-8,9- 10
A	GB, A, 760628 (PHIN SALES COMPANY LIMITED) 7 November 1956, see page 4, line 110 - line 127; figure 24 -- -----	1-8,9- 10
<p>* Special categories of cited documents:¹⁰</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search		Date of Mailing of this International Search Report
15th January 1993		20 -01- 1993
International Searching Authority		Signature of Authorized Officer
SWEDISH PATENT OFFICE		HANS PRESTO

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.PCT/SE 92/00719**

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
The members are as contained in the Swedish Patent Office EDP file on **02/12/92**
The Swedish Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A- 3865671	75-02-11	DE-A- 2236835 FR-A- 2151733 GB-A- 1398886	73-03-15 73-04-20 75-06-25
GB-A- 760628	56-11-07	NONE	