COMMONWEALTH OF AUSTRALIA

THE PATENTS ACT 1952-1969

CONVENTION APPLICATION FOR A PATENT

I/We, SEMPIRAN PATENTVERWERTUNGS

OF WIEDNER HAUPTSTRASSE 63, 1041 WIEN, OSTERREICH (AUSTRIA)

hereby apply for the grant of a Patent for an invention
entitled: "METHOD AND DEVICE FOR MANUFACTURING PLASTIC ROPES"

which is described in the accompanying complete specification.
This application is a Convention application and is based on the
application(s) numbered: P 25 31 346.6-16

for a patent or similar protection made in WEST GERMANY,
on 14th July, 1976

My/Our address for service is care of GRIFFITH, HASSEL & FRAZER,
Patent Attorneys, of 323 Castlereagh Street, Sydney 2000, in the
State of New South Wales, Commonwealth of Australia.

DATED this 9th day of July, 1976.

SEMPIRAN PATENTVERWERTUNGS

By their Patent Attorney:

of GRIFFITH, HASSEL & FRAZER
Fellows, Institute of Patent
Attorneys of Australia

TO:
THE COMMISSIONER OF PATENTS
COMMONWEALTH OF AUSTRALIA
DECLARATION IN SUPPORT OF AN APPLICATION FOR A PATENT

In support of the Application made by SEMPTRAN PATENTVERWERTUNGS

for a patent for an invention entitled: "METHOD AND DEVICE FOR MANUFACTURING PLASTIC ROPES"

1. K. Buchel of the Applicant's address, do solemnly and sincerely declare as follows:

1. I am authorized by the applicant for the patent to make this Declaration on its behalf.

2. HETNZ SÜLILHÖFER of D 4000 DÜSSELDORF, NEDERRIEINSTRASSE 158, DEUTSCHLAND (WEST GERMANY)

is/are the actual inventor(s) of the invention and the facts upon which the applicant is entitled to make the application are as follows:

THE SAID APPLICANT IS THE ASSIGNEE OF THE SAID INVENTOR.

3. The basic application(s) as defined by Section 141 of the Act, was/were made in WEST GERMANY, on the 14th day of July, 1975, by SEMPTRAN PATENTVERWERTUNGS

4. The basic application(s) referred to in paragraph 3 of this Declaration was/were first application(s) made in a Convention country in respect of the invention, the subject of the application.

Declared at WEST GERMANY day of June, 19 76

To: The Commissioner of Patents, CANBERRA.

NOTE: Initial all Deletions and Alterations. 
No-witnessing or legalisation required. 
For a Non-Convention application delete paragraphs 3 and 4 and initial the deletion. 
For Multiple Priorities incorporate details of all basic applications in paragraph 3. 
For application for a Patent of Addition add "of Addition" after the word "patent" wherever the word occurs, and initial each such insertion.

GRIFFITH, HASSEL & FRAZER, Box 2133, G.P.O., SYDNEY 2001. AUSTRALIA
The following statement is a full description of this invention, with the best method of performing it known to us:

[Redacted text]
The invention relates to a method and a device for the continuous production of a strip from polyurethane hard foam material or substances reacting similarly, possibly at least partially coated with backing material, whereby after their assembly the reaction components are applied to a conveyor belt or a web of backing material covering this moving away from their point of application and are caused to foam, whereafter the edges of the strip are trimmed and the strip cut normal to its longitudinal direction as required.

In the case of the known methods of this kind carried out on double conveyor belt installations the trimming scrape which occurs from the trimming of the edges of the web and possibly from the incorporation of a step in the trimmed border is collected, taken away and either deposited upon a rubbish tip or burnt in an incinerator, insolar as the material is combustible and no harmful gases arise from such burning. Because of the large quantities of trimming scrap from only one double conveyor belt installation running around the clock, the communal cleaning and refuse-collection authorities decline to take the trimming scrap away. Consequently private haulage firms undertake this removal service.

Both the deposited trimming scrap and also the burning of the trimming scrap constitute a considerable environmental pollution. The environment is directly polluted by the deposition upon dumps, and indirectly by incineration through the resultant combustion gases discharged into the surrounding air. But the trimming scrap also constitutes a consider-
able waste of valuable raw material, which is to be avoided as far as possible in our fast-moving society which is consumption-orientated through constant creation of artificial living requirements. Lastly the output of the known double conveyor belt installations is reduced by the amount of the constantly occurring trimming scrap.

It is the object of the invention so to constitute a method and a device for the continuous production of a strip from polyurethane hard foam material or substances reacting similarly, possibly at least partially coated with backing material, of the kind mentioned initially that with the overcoming of the disadvantages and shortcomings of the state of the art as outlined above, the trimming scrap occurring is completely re-used.

This object is attained in accordance with the invention in that the trimming scrap occurring is immediately recovered, possibly after fragmentation, and added to the reaction mixture.

The technical progress attainable with the invention relates to the advantage that through the immediate recovery of the trimming scrap in which the reaction is still not completed it is possible to attain a particularly homogeneous intermixing, possibly even with the formation of chemical compounds. The trimming scrap is not then present as an inert filler, but as a filling agent of a class on its own. This immediately recovered trimming scrap can be particularly well cross-linked by the reaction components, which further
its intermiscibility.

A further advantage consists in the fact that there is no longer any trimming scrap to be disposed of and thereby the load is removed from the disposal service and the environmental contamination is reduced. The environment is either directly relieved through a reduced utilisation of the disposal facilities, such as refuse tips, or indirectly through use of scrap elimination installations, such as incinerators. Through the reduced demands upon the incinerators less exhaust gas occurs, and thus less contamination of the ambient air. Through the feeding of the trimming scrap occurring into the still nascent hard foam material, an equally large amount of initial material is saved, and thus a contribution is made to the checking of thoughtless but dangerous waste. If the same quantity of initial material is employed as hitherto, then the output of the double conveyor belt installation can be raised through the recovery of the trimming scrap.

In the practical application the trimming scrap occurring can be fractionated to small pieces or to a granulate. In this way the trimming scrap can be simply and easily transported as a bulk material from the trimming point to the input point. In one way there is a further advantage in that the fragmentation saves costs which must result from a finer reduction to a powder, without the properties of the filled end-product being diminished thereby, and in another that the formation of dust is reduced thereby, whence more accept-
able workshop conditions are obtained.

The trimming scrap occurring can advantageously be extracted pneumatically and returned directly to the foaming reaction mixture.

In the device for putting into effect the method in accordance with the invention with a spray head for the application of the mixed reaction components, two conveyor belts disposed one above another, the sections of which turned towards one another delimit the space within which the hard foam material is caused to foam, supported by plates, and cutting means for the trimming and stepping of the edges of the coated web as appropriate, a blower is located with its discharge in the zone immediately above the foaming reaction mixture, the suction side of which embraces the trimming points on the edges of the coated web, and which is equipped with a fractionating device in the suction zone.

The invention is illustrated in the drawing in one embodiment example. It shows:

in Figure 1 a side view of the device and

in Figure 2 a schematic section of the coated web with the trimming scrap cut away.

In a machine frame not further illustrated, rollers are carried driven at an adjustable rotational speed, the lower roller 10 of which drives a lower endless conveyor belt 11. An upper endless conveyor 12 is disposed above the conveyor belt 11 which is driven from an upper roller 13.
The sections of the conveyor belts 11 and 12 turned towards one another are supported by means of plates 14 and 15 that restrict the space in which the hard foam material is foamed. The support plates 14 and 15 are firmly fixed to the machine frame. The lower conveyor belt 11 pulls out a lower covering layer 16 from a storage roll not further shown, for example a paper or plastic web, and the upper conveyor belt 12 an upper covering layer 17 from a storage roll likewise not further illustrated.

The liquid mixture of the assembled reaction components is applied as uniformly as possible upon the lower covering layer 16 by means of a spraying head 1b. The reaction mixture is so constituted that the foaming material adheres firmly to the covering layers. The quantity of the reaction mixture, the length of the foaming stretch and the speed of the circulating conveyor belts are so related to one another that at the end of the foaming stretch the foamed material reaches the upper covering layer 17 and adheres firmly to it.

At the end of the reaction stretch a uniformly high and dense web 19 of foam material coated on both sides results, the edges of which are trimmed with cutters 20. Through this scrap strips 21 occur on both edges which consist of a central portion of foam material and lateral portions of the covering layer. If the slabs of scaling material are to be provided with a step 22 at their edges, then two perpendicular cuts are effected with perpendicularly disposed cutters 23 and two horizontal incisions with
horizontally disposed cutters 24, which meet at their bases, so that at each edge of the foam material web 19 a step 22 results and a material strip 25 is scrapped. The finished web 19 is cut up into individual plates longitudinally.

The end faces so resulting can be provided with steps 21 in a similar manner, when further strips of scrap material 25 occur.

The whole of the trimming scrap 21, 25 is sucked up into a suction hood 26 which is connected through a suction pipe 27 with a blower 28. On the pressure side of the blower 28 is connected a pressure pipe 29 the discharge 30 of which enters the zone directly above the foaming reaction mixture. The suction hood 26 encloses the trimming points at the edges of the coated web 19 and where appropriate at the end faces of the slabs cut to length. A fractionation device known per se and consequently not further illustrated is disposed in the suction hood 26 which reduces the trimming scrap to small pieces or granulate of a grain size from 5 to 20 mm in diameter. The chopped up or fractionated trimming scrap 31 is sucked through the suction pipe 27 of the blower 28 and blown out through the pressure pipe 29 onto the foaming reaction mixture. There it adheres to the gummy mixture and is incorporated into the foam with it.
CLAIMS
THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A method for the continuous production of a strip from polyurethane hard foam material or substances reacting similarly, possibly at least partially coated with backing material, whereby after their assembly the reaction materials are applied to a conveyor belt or a web of backing material covering this moving away from their point of application and are caused to foam, after which the edges of the strip are trimmed and the strip possibly cut normal to its longitudinal direction, characterised in that the trimming scrap occurring is recovered and returned to the reaction mixture, possibly after fractionation.

2. A method as in claim 1, characterised in that the scrap occurring from the trimming is fractionated to small pieces or granulate.

3. A method as in claim 1 or 2, characterised in that the trimming scrap occurring is extracted pneumatically and carried directly to the foaming reaction mixture.

4. A device for putting into effect the method as in claims 1 to 3, with a spraying head for the application of the mixed reaction components, two conveyor belts disposed one above the other, the section of which facing one another supported by plates delimit the space within which the hard foam material is foamed, and cutting means for the trimming and if appropriate stepping of the edges of the coated web, characterised in that a blower has its
discharge in the zone directly above the reaction mixture being foamed, encloses the trimming zones of the edges of the coated web with its suction side and is provided with a fractionation device in the suction zone.

Dated this 22nd day of June, 1976.

SIMPRIKAN PATENTVERWERTUNGS G.M.B.H.
By their Patent Attorney:
Of GRIFFITH, HASSEL & FRAZER,
DRAWINGS
END