Patents Act

APPLICATION FOR A STANDARD PATENT

613936

I/We Signode Corporation

of 3600 West Lakes Avenue,
Glenview,
Illinois 60025,
UNITED STATES OF AMERICA.

hereby apply for the grant of a standard patent for an invention entitled:

A METHOD OF MAKING MOULDINGS FROM PAPER AND THERMOPLASTICS

which is described in the accompanying complete specification.

Details of basic application

Number of basic application: 3725965.2

Convention country in which basic application was filed: FEDERAL REPUBLIC OF GERMANY

Date of basic application : 5 August 1987

Address for Service:

PHILLIPS ORMONDE & FITZPATRICK
Patent and Trade Mark Attorneys
367 Collins Street
Melbourne 3000 AUSTRALIA

Dated: 26 July 1988

PHILLIPS ORMONDE & FITZPATRICK
Attorneys for:
Signode Corporation

By:

Our Ref : 101717
POF Code: 1431/7004

6012q/1

AUSTRALIA

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DECLARATION FOR A PATENT APPLICATION

▼ INSTRUCTIONS
(a) Insert "Convention" if applicable
(b) Insert FULL name(s) of applicant(s)

In support of the (a) Convention application made by
(b) SIGNODE CORPORATION

(c) Insert "of addition" if applicable
(d) Insert TITLE of invention

(hereinafter called "applicant(s) for a patent (c) for an invention entitled (d)

"A METHOD OF MAKING MOULDINGS FROM PAPER AND THERMOPLASTICS"

(e) Insert FULL name(s) AND address(es) of declarant(s) (See headnote *)

I/We (e) THOMAS W. BUCKMAN, VICE PRESIDENT of
Illinois Tool Works Inc., 3600 West Lake Avenue,
Glenview, Illinois 60025-5811,
United States of America
do solemnly and sincerely declare as follows:

1. ~~I/We are the applicant(s)~~
(or, in the case of an application by a body corporate)
1. I am/~~We are~~ authorized to make this declaration on behalf of the applicant(s).
2. ~~I/We am/We are the actual inventor(s) of the invention~~
(or, where the applicant(s) is/are not the actual inventor(s))

(f) Insert FULL name(s) AND address(es) of actual inventor(s)

2. (f) Hans Warych
Birenkamp 23
4650 Gelsenkirchen
FEDERAL REPUBLIC OF GERMANY

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

(g) Recite how applicant(s) derive(s) title from actual inventor(s) (See headnote **)

(g) Applicant is the assignee of the invention from Signode System GmbH of Federal Republic of Germany, who in turn is the assignee of the invention from the actual inventor

(Note: Paragraphs 3 and 4 apply only to Convention applications)

(h) Insert country, filing date, and basic applicant(s) for the/or EACH basic application

3. The basic application(s) for patent or similar protection on which the application is based is/~~are~~ identified by **country, filing date, and basic applicant(s)** as follows:

(h) Federal Republic of Germany
5 August 1987
Signode System GmbH

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

(k) Insert PLACE of signing

(l) Insert DATE of signing

(m) Signature(s) of declarant(s)

Note: No legalization or other witness required

Declared at (k) 3600 West Lake Avenue
Glenview, IL 60025 (USA)
Dated (l) 13 May 1991

(m) .....
THOMAS W. BUCKMAN, VICE PRESIDENT

To: The Commissioner of Patents

P18/7/78
GLC:KW
IRN 101717

PHILLIPS ORMONDE & FITZPATRICK
Patent and Trade Mark Attorneys
367 Collins Street
Melbourne, Australia

(12) PATENT ABRIDGMENT (11) Document No. AU-B-20358/88
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 613936

(54) Title
A METHOD OF MAKING MOULDINGS FROM PAPER AND THERMOPLASTICS

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(71) Applicant(s)
SIGNODE CORPORATION

(72) Inventor(s)
HANS WARYCH

(74) Attorney or Agent
PHILLIPS ORMONDE & FITZPATRICK , 367 Collins Street, MELBOURNE VIC 3000

(56) Prior Art Documents
DE 3501139
DE 1778230

(57) Claim

1. A process for the production of mouldings from waste paper and waste thermoplastics, the waste containing a packing paper coated with plastics on at least one side, the process including: comminuting the waste to form chips; placing the chips in a screw extruder for melting the thermoplastics and processing the chips into an extrudable mixture; and continuously moulding the extrudable mixture into mouldings by means of an extrusion tool connected to the screw extruder, the waste thermoplastics being provided solely by packing paper coated with plastics on at least one side, and the waste having a quotient of the weight per unit area of the paper and the weight per unit area of the plastics in the range from 1.0 to 6.5.

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COMPLETE SPECIFICATION
(ORIGINAL)

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Class Int. Class

Application Number:
Lodged:

Complete Specification Lodged:
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Published:

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Related Art:

APPLICANT'S REFERENCE: 66 816a/si-

Name(s) of Applicant(s):

Signode Corporation

Address(es) of Applicant(s):

3600 West Lakes Avenue,
Glenview,
Illinois 60025,
UNITED STATES OF AMERICA.

Address for Service is:

PHILLIPS ORMONDE & FITZPATRICK
Patent and Trade Mark Attorneys
367 Collins Street
Melbourne 3000 AUSTRALIA

Complete Specification for the invention entitled:

A METHOD OF MAKING MOULDINGS FROM PAPER AND THERMOPLASTICS

Our Ref : 101717
POF Code: 1431/7004

The following statement is a full description of this invention, including the best method of performing it known to applicant(s):

DESCRIPTION:

The invention relates to a method of making mouldings from paper and a thermoplastic.

Numerous articles in daily life consist of paper, others consist of thermoplastic materials. Other articles consist of thermoplastic-coated paper. This applies particularly to articles in the packaging industry. In the manufacture of these articles and after the use thereof waste occurs which previously constituted an environmental and disposal nuisance, particularly in respect of the plastic component. Although it is known to recycle to an extruder the trimming waste occuring in the manufacture of plastic sheeting, for the manufacture of new plastic sheeting therefrom, no such recycling has hitherto been carried out in the case of thermoplastic-coated paper. Nor is there a simple method whereby it is possible to manufacture from paper and thermoplastics, more particularly the waste thereof, articles of a specific type to meet stringent requirements in respect of strength, stability and corrosion behaviour.

The object of the invention is to manufacture from paper and thermoplastics articles of a specific type which can be used, for example, in the building industry, the packaging industry, and also for other purposes.

According to the present invention there is provided a process for the production of mouldings from waste paper and waste thermoplastics, the waste containing a packing paper coated with plastics on at least one side, the process including: comminuting the waste to form chips; placing the chips in a screw extruder for melting the thermoplastics and processing the chips into an extrudable mixture; and continuously moulding the extrudable mixture into mouldings by means of an extrusion tool connected to the screw extruder, the waste thermoplastics being provided solely by packing paper coated with plastics on at least one side, and the waste having a quotient of the weight per unit area of the paper and the weight per unit area of the plastics in the range from 1.0 to 6.5.

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One preferred embodiment, the invention is characterised in that the waste in respect of the thermoplastics is solely trimming waste of packing paper coated with plastics at least on one side. To this extent the invention makes use of the fact that the conditions with waste of this kind are such - for reasons associated with the coating technology - that extrudable processing in an extruder is immediately possible. That is surprising because the plastic coating is usually very thin. In addition, the paper constituents and the plastic constituents are already intimately joined togetner by the coating operation. This applies particularly if the trimming waste used has a preferred quotient of about 2, in respect of the weight per unit of area of the paper, on the one hand, and the weight per unit area of the plastic, on the other hand.

Preferably, the weight per unit area of the paper in the waste used is about 200 g/mg^2 and that of the plastic material is about 60 g/mg^2.

Mouldings of particularly good quality are obtained if the plastic coating or the plastic consists of polyethylene.

The invention, in a preferred embodiment, includes additionally mixing paper chips in with the chips.

Other fillers may be mixed in with the chips.

Any conventional extrusion presses can be used according to the invention. Twinscrew extruders are preferably used.

If the teaching of the invention is followed, the result is mouldings which are particularly outstanding mechanically. In the mouldings the paper constituent forms a reinforcement and a skeleton in a plastic matrix, and this imparts particular bending strength and compressive strength, including, in particular, fatigue strength, to the mouldings. The plastic constituent also makes the moulding resistant to weathering and extremely corrosion-resistant in most environments. The mouldings manufactured can therefore be used for many purposes in the building industry and in the packaging industry, e.g. in the form of wall panels or cladding panels for wall panels, floor panels and ceiling panels or cladding panels for floor and ceiling panels, sections, and for the manufacture of panels for transportation.

The claims defining the invention are as follows:

1. A process for the production of mouldings from waste paper and waste thermoplastics, the waste containing a packing paper coated with plastics on at least one side, the process including: comminuting the waste to form chips; placing the chips in a screw extruder for melting the thermoplastics and processing the chips into an extrudable mixture; and continuously moulding the extrudable mixture into mouldings by means of an extrusion tool connected to the screw extruder, the waste thermoplastics being provided solely by packing paper coated with plastics on at least one side, and the waste having a quotient of the weight per unit area of the paper and the weight per unit area of the plastics in the range from 1.0 to 6.5.

2. A process according to claim 1, wherein the waste thermoplastics is solely the trimming waste of the packing paper coated with plastics.

3. A process according to claim 1 or 2, wherein the quotient is about 2.

4. A process according to any preceding claim, wherein the waste used has a paper weight per unit area of about 200 g/m^2 while the plastics has a weight per unit area of about 60 g/m^2.

5. A process according to any preceding claim, wherein the plastics coating consists of polyethylene.

6. A process according to any preceding claim, wherein paper chips are additionally added to the chips.

7. A process according to any preceding claim, wherein fillers are added to the chips.

8. A process according to any preceding claim, and substantially as hereinbefore described.

9. A moulding when made according to the process as claimed in any preceding claim.

DATED: 9 April, 1991
PHILLIPS ORMONDE & FITZPATRICK
Attorneys for:
SIGNODE CORPORATION

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