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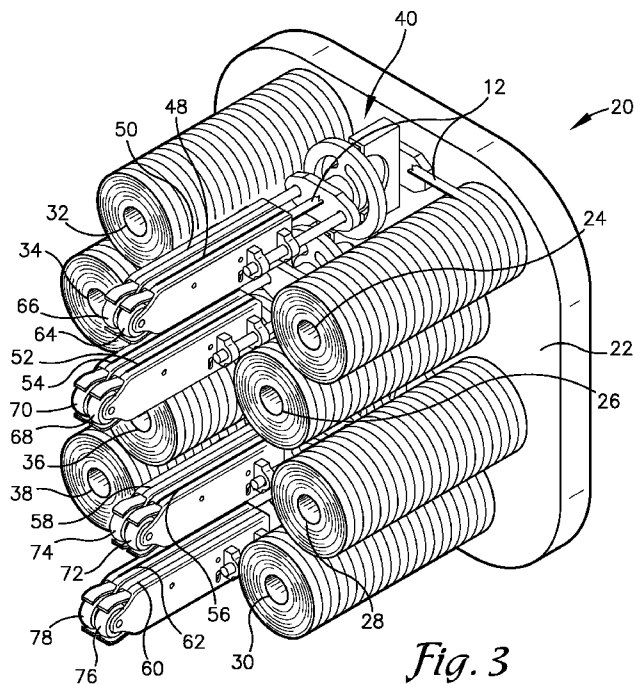
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[Continued on next page]

(54) Title: MATERIAL PLACEMENT METHOD AND APPARATUS



(57) Abstract: A material placement head for dispensing and compacting a plurality of strips of a material onto a surface with a plurality of independently movable roller assemblies. Each roller assembly of the placement head comprises a compacting roller and may be rotatably and linearly moved in six-degrees of freedom independent of the other roller assemblies of the placement head. The roller assemblies may be arranged in a staggered configuration and substantially simultaneously apply the plurality of strips of the material to the surface, such that the strips of the material are applied to adjacent paths on the surface. Each compacting roller may be malleable and substantially crowned around its outer circumferential surface to provide even compaction to the strips of the material.

Fig. 3

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**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

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- *with international search report (Art. 21(3))*

## INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/US2008/081682****A. CLASSIFICATION OF SUBJECT MATTER****B29C 70/38(2006.01)i, B29C 70/54(2006.01)i**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC B29C 70/38

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Utility models and applications for Utility models since 1975  
Japanese Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

e-KIPASS(KIPO internal) composite, roller, actuator

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 7,063,118 B2 (DAVID E. HAUBER et al.) 20 June 2006 see Abstract, Claims, Figures	1-25
A	US 2005/0061422 A1 (JAMES P. MARTIN) 24 March 2005 see Abstract, Claims, Figures	1-25
A	US 4,707,212 A (SAMUEL I. HAILEY et al.) 17 November 1987 see Abstract, Claims, Figures	1-25
A	US 4,601,775 A (ROBERT J. GRONE) 22 July 1986 see Abstract, Claims, Figures	1-25
A	US 4,569,716 A (JOHN H. PUGH) 11 February 1986 see Abstract, Claims, Figures	1-25
A	US 4,557,783 A (ROBERT J. GRONE et al.) 20 June 2006 see Abstract, Claims, Figures	1-25

 Further documents are listed in the continuation of Box C. See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"O" document referring to an oral disclosure, use, exhibition or other means

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"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

"&amp;" document member of the same patent family

Date of the actual completion of the international search

29 JUNE 2009 (29.06.2009)

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2008/081682**

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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