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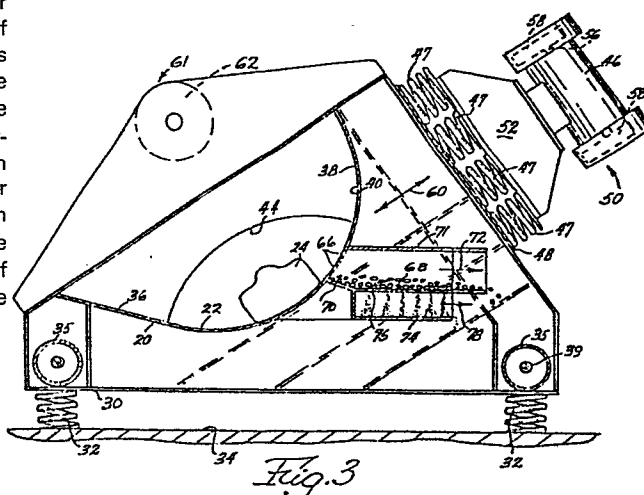
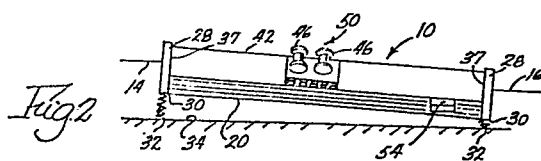
71 Applicant: **GENERAL KINEMATICS CORPORATION**
777 Lake Zurich Road
Barrington Illinois 60010(US)

72 Inventor: **Musschoot, Albert**
Route 5 Dana Lane
Barrington Illinois 60010(US)

74 Representative: **Allden, Thomas Stanley et al,**
A.A. THORNTON & CO. Northumberland House 303-306
High Holborn
London WC1V 7LE(GB)

54 **Tumbling apparatus.**

57 A vibratory material handling apparatus (10) is provided for mixing of materials, cleaning, blending and/or shake-out of castings or the like. The machine (10) comprises a horizontal container (20) carried by a frame (30) resiliently mounted on a foundation (34). A vibration generator (50) is carried by the container (20) and produces a line of force along an axis which passes exteriorly of the container or intersects with the container but offset from the center of gravity of the container. The vibration generator (50) is adjustable on the container (20) so that the direction of the line of vibratory force can be changed for changing the tumbling, mixing, cleaning, blending or shake-out characteristics of the machine (10). The relative movement between the inside of the container and the material in the container describes angles of attack with the container surface which movements are rotational about a center of rotation. A line from the center of rotation through the center of gravity of the container (20) intersects the line of force from the vibration generator (50) at a substantially right angle.





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
X	DE-A-2 454 288 (ULTRAMATIC EQUIPMENT CO.) * Claims; figures *	1-3	B 24 B 31/06
Y		7-10, 12-23	
X	--- US-A-4 047 343 (SMITH) * Whole document *	11	
Y		12-23	
A	--- US-A-4 025 419 (MUSSCHOOT) * Claims; figures *	4-6	
Y		7-10	TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
A	--- DE-A-2 831 688 (WHEELABRATOR BERGER MASCH.)		B 24 B B 24 C B 22 D
A	--- FR-A-1 126 296 (AMAG-HILPERT-PEGNITZHÜTTE)		
A	--- CH-A- 551 845 (POLYSERVICE) -----		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 05-09-1986	Examiner ESCHBACH D.P.M.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			