

United States Patent [19]

Umeda et al.

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- [54] **METHOD AND APPARATUS FOR MEASURING DYNAMIC RESPONSE CHARACTERISTICS OF SHOCK ACCELEROMETER**
- [75] Inventors: Akira Umeda; Kazunaga Ueda, both of Tsukuba, Japan
- [73] Assignees: Agency of Industrial Science & Technology; Ministry of International Trade & Industry, Tokyo, Japan

- [21] Appl. No.: 494,396
- [22] Filed: Mar. 16, 1990
- [30] Foreign Application Priority Data
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- [51] Int. Cl.⁵ G01P 21/02
- [52] U.S. Cl. 73/1 D
- [58] Field of Search 73/1 D, 1 DV, 1 DC, 73/2, 12

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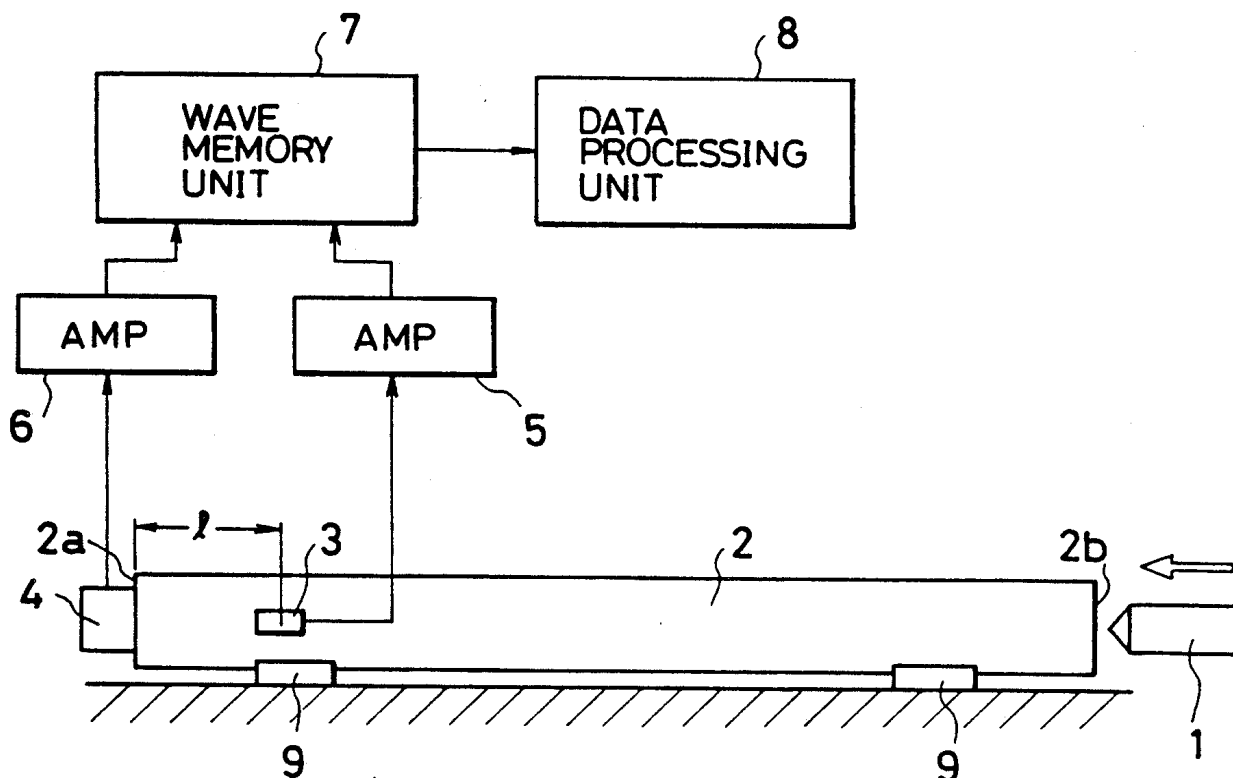
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Primary Examiner—Robert R. Raemis
Attorney, Agent, or Firm—Oblon, Spivak, McClelland, Maier & Neustadt

[57] ABSTRACT

A method for measuring the dynamic response characteristics of a shock accelerometer comprises the steps of attaching an accelerometer to be tested and a strain gage to one end of a rod supported to be axially slidable, imparting an impact to the other end of the rod, inputting the acceleration arising when the elastic wave reflect from the end surface of the rod to the accelerometer and the strain gage and the strain gage to data processing and error compensation to obtain the gain and phase characteristics of the accelerometer.

10 Claims, 12 Drawing Sheets



[54] METHOD AND ARRANGEMENT FOR CONTROLLING THE THICKNESSES OF WEBS AND FLANGES OF BEAMS IN UNIVERSAL ROLLING MILL STANDS

[75] Inventors: **Wolfgang Rohde**, Dormagen; **Dieter Rosenthal**, Niederrischbach, both of Fed. Rep. of Germany

[73] Assignee: **SMS Schloemann-Siemag Aktiengesellschaft**, Fed. Rep. of Germany

[21] Appl. No.: 316,426

[22] Filed: Feb. 27, 1989

[30] Foreign Application Priority Data

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[51] Int. Cl.⁵ B21B 37/08; B21B 37/12

[52] U.S. Cl. 72/8; 72/11; 72/16; 72/20; 72/225

[58] Field of Search 72/16, 20, 21, 225, 72/240, 245, 8, 11, 12, 19

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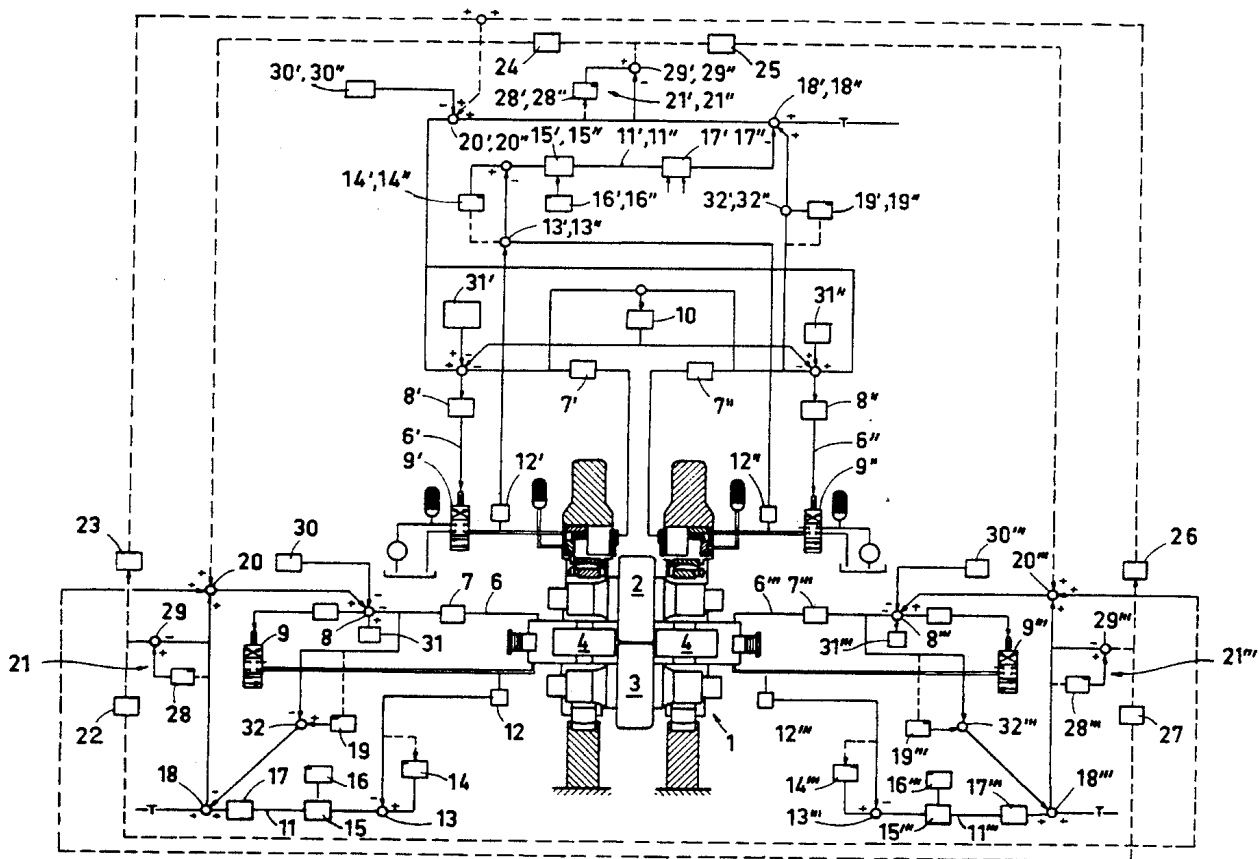
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Primary Examiner—E. Michael Combs
Attorney, Agent, or Firm—Toren, McGeady & Associates

[57] ABSTRACT

A method and an arrangement for controlling the thicknesses of webs and flanges of beam sections in universal rolling mill stands. A gage-meter circuit is provided for each roll of the universal rolling mill stand. In order to maintain a certain ratio of web elongation to flange elongation, the gage-meter circuits are coupled to each other for a mutual influencing. The adjustment can be effected in dependence on a rolling schedule.

7 Claims, 1 Drawing Sheet



- [54] **REFRIGERATOR WITH HOT LIQUID LOOP/CASE PROTECTION**
- [75] Inventors: **John M. Powell**, Charlestown, Ind.;
Louis D. Bruck, Louisville, Ky.
- [73] Assignee: **General Electric Company**,
Louisville, Ky.
- [21] Appl. No.: **542,054**
- [22] Filed: **Jun. 22, 1990**
- [51] Int. Cl.⁵ **F25B 47/00**
- [52] U.S. Cl. **62/277; 62/259.1;**
62/531; 312/214
- [58] Field of Search **62/277, 259.1, 531;**
312/296, 214

Primary Examiner—Lloyd L. King
Attorney, Agent, or Firm—Radford M. Reams; H. Neil Houser

[57] **ABSTRACT**

The combination of a refrigerator cabinet, a hot refrigerant loop conduit passing through an opening in a peripheral wall of the cabinet and a grommet shielding the conduit from the edge of metal around the opening. The grommet, formed by a pair of molded body elements joined by an integral hinge, includes a pair of passages receiving portions of the conduit. Resilient rings extend into the passages and engage the conduit to preclude escape of foam insulation through the passages. An outwardly diverging mandrel extends from the refrigerated compartment end of each passage. A sealing lip projects outwardly from the grommet body and inclines toward the housing wall. Resilient fingers extend from the grommet body and have distal ends which overlap the distal edge of the sealing lip. The distal ends of the fingers and distal edge of the sealing lip engage opposite sides of the peripheral wall so the lip seals against leakage of foam through the opening.

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6 Claims, 3 Drawing Sheets

