

normal without making mechanical contact with it. The image of an illuminated grating of special construction is formed on the surface to be observed, and the light reflected from this surface then forms an image of equal size on a second, exactly similar, grating. The disposition of the second image relative to the second grating depends upon the position of the probe relative to the plane surface\_\_\_\_\_.

Displacements may be measured with a standard deviation of  $2.8 \times 10^{-5}$  in. Device is apparently for static deflections but appears to have promise for dynamic conditions.

2106

Barret P  
MEASUREMENT OF SMALL DISPLACEMENTS OF A PLANE SURFACE WITH A SEMI-VIRTUAL SLIT MODULATOR (French)  
Journal de Physique et le Radium, Paris  
June 1956, Vol. 17, No. 6, p. 29.

This method is suitable for measuring the displacement of a polished or plated surface. A metal plate such as a razor blade is mounted parallel to and about 0.01 mm away from the surface observation of the slit at grazing incidence shows a real and a virtual (reflected) edge. Variations in the magnitude of this "semi-virtual slit" are used to modulate a beam of light falling on a photocell for recording static or dynamic displacements of the surface.  
(Author's abstract)

2107

Kirby P L  
APPARATUS FOR THE MEASUREMENT OF TIME OF IMPACT  
British Journal of Applied Physics  
1956, Vol. 7, pp. 227-228.

An apparatus is described for measuring the time of impact of a ball impacting on a plane surface. A direct connection to the ball is not necessary. The plane surface forms one surface of a capacitor. The other capacitor electrode is a ring at about 5 mm above the plane surface. The ball drops through the ring which changes the capacitance. While the ball is in contact with the surface, the capacitance is unchanged and therefore a measure of the time of impact.

2108

Krafft J M  
WEIGH BAR APPARATUS FOR MEASURING FORCES RESISTING BALLISTIC PENETRATION  
Review of Scientific Instruments  
1955, Vol. 26, pp. 539-542.

- 2109 Dineff J, Carson J A and Charters A C  
 PISTON-TYPE STRAIN GAGE FOR MEASURING PRESSURES IN  
 INTERIOR BALLISTICS RESEARCH  
 Review of Scientific Instruments  
 1955, Vol. 26, pp. 879-883.
- 2110 Dapoigny J, Kieffer J and Vodar B  
 SHOCK WAVES IN A DENSE MEDIUM. II EXPERIMENTAL  
 METHODS AND SOME RESULTS OF MEASUREMENTS MADE  
 BY THE METHOD OF ULTRA RAPID RADIOGRAPHY  
 J. Rech. Cent. Nat. Rech. Sci.  
 1955, Vol. 6, pp. 260-270.
- 2111 Muster D F and Volterra E G  
 USE OF A ROTATING DRUM CAMERA FOR RECORDING IMPACT  
 LOADING DEFORMATIONS  
 Journal of the Society of Motion Picture and Television Engineers  
 1952, Vol. 59, pp. 44-48.
- 2112 Mintrop H  
 MEASUREMENTS OF LARGE IMPACT FORCES (German)  
 Schweizer Archiv für Angewandte Wissenschaft and Technik, Zurich,  
 1950, Vol. 16, pp. 119-124.
- Author's method of measurement of impact forces is  
 based on Hertz classical equations, concerning the  
 contact between elastic solid bodies. In order to  
 verify their validity and utility for this purpose, ex-  
 tensive static and dynamic tests were made, where  
 the contact areas between spheres and plane solid  
 surfaces were measured and the corresponding forces  
 observed and computed. Balls were dropped on plane  
 surfaces, and new methods, one of them involving the  
 use of high-speed films, were used to measure the time  
 of impact and the diameter of the circular contact sur-  
 face \_\_\_\_\_ . (Author's abstract)
- 2113 MacLaren D D, Taylor I J and Beedle L S  
 A MECHANICAL DEFLECTION GAGE--AN INSTRUMENT FOR  
 MEASURING DISPLACEMENT UNDER IMPACT  
 Proceedings Society for Experimental Stress Analysis  
 Vol. 10, No. 1, pp. 135-142.
- 2114 Taylor I J  
 SOME RECENT DEVELOPMENTS OF THE MECHANICAL DEFLEC-  
 TION GAGE  
 Proceedings Society for Experimental Stress Analysis  
 Vol. 10, No. 1, pp. 142-146.