

**Fire-Proof Flooring.**—An English brewer made his malt-floor of three-inch planks grooved together. A fire broke out, the roof over the floor fell in, and the fire raged for twenty-four hours over the floor without burning through it, because the grooves prevented a supply of air from below. The security might be increased by covering the beams and the under side of the planking with fire-proof cement.—*Der pr. Masch.-Const.* C.

**Variability of Orbital Major-Axes.**—M. S.-C. Hareter finds that the invariability of the major-axes of planetary orbits, which Laplace, Lagrange and Poisson have established for the first and second powers of the disturbing masses, does not hold for higher powers. It may, therefore, perhaps, be found that the stability of the system requires the figurate harmony of principal planetary masses, which was pointed out in the September number of this JOURNAL, page 148.—*Comptes Rendus.* C.

**Apparatus for Measuring the Work of Iron.**—In the *Annales des Ponts et Chaussées* for October, 1877, M. Dupuy describes some new apparatus for the direct measurement of the work of iron, the need of which was suggested by the increasing number of iron bridges. The system rests on the fact that a bar of iron, 1 metre long, stretches or shortens to the extent of one-tenth of a millimetre for a tension or compression of two kilogrammes per square metre of section. The apparatus requires great care in its use, and it should only be intrusted to conscientious and intelligent experimenters, but when such precautions are taken as are obviously necessary, it seems likely to yield valuable results. The experiments that are reported in the paper show a close accordance with theory. The theoretical maxima were never surpassed. C.

**Removal of Grease from Feed-Water.**—M. Hetet uses lime-water to fix the fatty acids in the feed-water of boilers in engines with surface condensers. The corrosive action of such acids rapidly wears out the boilers, and the greasy water cannot be made potable by distillation. M. Hetet's method has been introduced on many vessels of the French navy, and he claims that it adds greatly to the duration of the boilers, while it furnishes a distilled water without odor and without taste, and entirely unobjectionable for drinking or for cooking.—*Comptes Rendus.* C.