This invention relates to moisture-proof joints, and particularly to a joint constituted by inter-fitting edge strips such as are commonly used as reinforcement elements along the mating edges of storage chests, trunks, and certain classes of luggage.

Objects of the invention are:

(1) To provide a fluid-tight seal in which the major sealing areas are plane surfaces, thus simplifying the construction and facilitating the interchangeability of the component parts;

(2) To provide a fluid-tight seal characterized by complementary tongued and grooved elements and a sealing strip of deformable material adapted to register with the grooved element in such manner as to leave a space at the bottom of the groove to serve as an expansion chamber for the deformable material when the latter is subjected to pressure from the tongued element as the complementary edges are brought together;

(3) To provide a fluid-tight seal in which the sealing area is more extensive than in former joints of comparable construction;

(4) To provide a sealing structure in which the deformable sealing material is supplemented by a resilient metallic element operating to force the sealing material against the adjacent sealing surfaces and maintain sealing pressure independently of the elastic properties of the deformable material, so that loss of such elasticity due to aging or over-heating will not lead to leakage through the seal.

The body of the luggage case 5 is shown as provided with sloping side walls 1 having a uniform taper from the outer edge 11 to the flat bottom surface 7. Above the bottom surface 7 is a sealing strip 3 which is deformed by the tongue 2 of the upper edge strip during the process of pressing part 6 upon part 5 until the mating surfaces 11 and 11' make contact, and a fluid-tight seal is thereby formed along the side walls 1 by the pressure of the sealing strip 3 thereon.

The example of the additional groove 9, or a metallic strip 4 may be employed to lock the parts together along mating surfaces 10 having a curvature serving to distribute shock stresses over an arcuate area, the arcuate shape being most resistant to failure by mechanical shock.

The lower surface of the material 3 is fastened, or bonded to the metallic element 12, so that when the tongue 2 presses upon and deforms 3, the material 3 will first fill the volume 13 between the tongue and groove, and as the tongue is inserted to its full depth the pressure of the tongue upon the material 3 will cause the resilient metallic element 12 to be depressed. The element 12, being stressed by such pressure, in turn applies a resilient pressure to the material 3 to hold the latter in firm, sealing contact with the side walls 1, in much the same manner as a lock washer applies a force to a nut. The tongue 2 is covered (or at least partially covered as shown in the figure) with a coating 2', so that when an impact takes place between 1 and 2' by dropping or jarring, the force transmitted through the sealing element and consequently through the luggage case is decreased. By putting a thin layer of elastic material 4 over 4 and 10, the forces caused by shock between the elements 6 and 8 can be further reduced. The stress in material 8 at 9 can be reduced by substituting the curved surface 7, for the straight surface shown at 9 in the figure.

What is claimed is:

A structure for application to the registering edge surfaces of a trunk or similar piece of luggage, to resist moisture penetration, comprising, in combination, correspondingly tapered tongue and grooved elements, a deformable element disposed along the lower region of said grooved element, and a resilient metallic member of inverted U-shape, said resilient inverted U-shaped member having its lateral extremities in engagement with the lateral extremities of the bottom surface of the groove in said grooved element, and having all portions of its surface, other than said extremities, spaced above said bottom surface of the groove in said grooved element, and having its upper surface in contact with said deformable element, said resilient metallic member serving to maintain the lower surface of said deformable element spaced above the bottom surface of the groove in said grooved element, so that when said deformable element is pressed downwardly upon insertion of said tongued element, the former can expand both laterally and downwardly to establish firmer sealing pressure against the tapered side walls of said grooved element.

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