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The young man's book of amusement

Halifax, 1848

The Mode of Constructing and Filling Balloons

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prisons, hospitals, ships, and houses, where contagion is presumed or suspected; the white acid fumes diffusing themselves quickly round.

The Mode of Constructing and Filling Balloons.

The best forms for balloons, are those of a globe, and an egg-like figure. Fire-balloons, or those raised by heated air, if very large, may be made of linen, or silk, and must be open at the bottom, having a hoop round the opening, from which is suspended the grate for the fuel, which is best of straw, or other light combustibles. Small balloons of this kind may be made of tissue paper, having a wire round the bottom. Two cross wires may support in the centre of the opening a little cup, with some cotton and spirits of wine, the flame of which will rarefy the air, and raise the machine. Large balloons for inflammable air, must be made of silk, and varnished over, so as to be air-tight. To the upper part of the balloon there should be fitted a valve, opening inwards, to which a string should be fastened, passing through a hole made in a small piece of wood, fixed in the lower part of the balloon; so that the aeronaut may open the valve when he wishes to descend. The action of the valve is effected by a round brass plate, having a hole about two or three inches diameter: on the inside there is a shutter of brass, covered also with leather, which serves to close the hole; it is fastened to the leather of the plate,

and kept against the hole by a spring. To the lower part of the balloon a pipe is fixed, made of the same materials with the balloon, which serves it to fill it by. The car or boat, is made of wickerwork, covered with leather, and well varnished, or painted, and is suspended by ropes proceeding from the net, which goes over the balloon. This netting should cover the upper part, and come down to the middle, with various cords proceeding from it to the circumference of a circle, about two feet below the balloon. From that circle other ropes go to the edge of the boat. This circle may be made of wood, or of several pieces of slender cane, bound together. The meshes of the net should be small at top (against which part of the balloon the inflammable air exerts the greatest force) and increase in size as they recede from the top. The inflammable air for filling the balloon, is procured by putting a quantity of iron-filings, or turnings, with some oil of vitriol diluted with water, into casks lined with lead. From the top of these casks, tin tubes proceed, which unite into one that is connected with the silk tube of the balloon. Balloons cannot be made smaller than six feet in diameter, of oiled silk, as the weight of the material is too great for the air to buoy it up. They may be made smaller, of thin strips of bladder, or other membrane, glued together. The best for this purpose is the allantois of a calf, which is the membrane enclosing the fetus in the womb. With this they may be made eighteen inches in diameter. Fig. 2, represents the present improved form of the hydrogen gas balloon.

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