SHUTTLE (O. Eng. *shitel*, &c.; from the same word as "shoot"), a boat-shaped implement used in weaving to pass a thread of weft to and fro between two lines of warp. The origin of this implement is lost in the mists of a remote antiquity, and yet it was long preceded by the loom. Several wall paintings at Thebes depict looms that are apparently provided with a hooked rod for drawing weft through the warp, but with such a device either two weft threads would be simultaneously placed in one division of the warp, or the selvages would be imperfect. Since neither of these conditions obtain in the ancient Egyptian fabrics that have been recovered, it may be concluded that some other plan was also adopted. Netting needles have been found in Egyptian tombs, and as these would be more suitable for weaving than a hooked rod, it is conceivable they were so employed. Or a spinning spindle charged with weft might be conveyed through the warp, as was customary, at a much later period, with Greek, Roman and other weavers. So long as a shuttle was thrown from hand to hand, the breadth of cloth which one weaver could produce was limited to his ability to reach from selvage to selvage of the piece. But from 1733, when John Kay invented the "fly shuttle," these implements have been made straight, and propelled mechanically, also, to secure light running, they have been mounted upon rollers which project slightly on the under side. Shuttles are now made in various forms and sizes from box, and other hard-grained, smooth woods, as well as from vulcanized fibre and metals. For silk weaving by hand, they are approximately 12 in. long by 1 in. square in section, and weigh about 3 oz.; those for calico weaving by power, are about $12\frac{1}{2}$ in. long, $1\frac{1}{2}$ in. wide, $1\frac{1}{4}$ in. deep, and weigh about $9\frac{1}{2}$ oz.; they are also provided with conical steel tips which abut upon short coiled springs let into the shuttle. The construction, fixing and control of shuttle tongues that hold the weft, together with numerous devices for putting the thread under an elastic tension, have formed the subjects for many patents. The tongues intended to hold cops are split to form a spring whose strength suffices to fix the cop in position while the thread is drawn from the outer end through a porcelain eye in the shuttle front, the tension being regulated by deflection.

The small shuttles employed to weave ribbons, and other narrow goods, are bowed in front, recessed to hold a spool of weft, and have an eye fixed at the centre of the bow for the thread to pass through as it unrolls. These shuttles are formed into sets, which correspond with the number of fabrics to be manufactured simultaneously and may be placed on one level, or in tiers; in either event, all in one horizontal plane are moved to and fro together across different webs, by means of racks and pinions; for a rack is inserted lengthwise in each shuttle, and by engaging the racks with intermittently driven pinions, the shuttles receive their requisite movements.

For further information regarding weaving and looms, see WEAVING and WEAVING MACHINERY. (T. W. F.)