

نظم التجميع الحديثة للأثاثات المصنعة من الألواح المعدنية

Newfangled Joining systems for Furniture Manufactured from Sheet Metal

أ.م.د/ محمد محمد هلال

أستاذ مساعد بقسم الأثاثات والإنشاءات المعدنية والحديدية كلية الفنون التطبيقية- جامعة حلوان- مصر

Assist. Prof. Dr. Mohammed Mohammed Helal**Assistant Professor, Department of Metal Furniture and Constructions Faculty of****Applied Arts, Helwan University, Egypt****dr.helal.1971@gmail.com****Abstract**

Cold forming by hemming and folding metal furniture parts and products which are made from sheet metal changes the shape and/or the size of these parts and products. These processes apply force to the materials until they reach the desired flexibility and pliability and thereby can determine and their track by special equipment in order to give the product the desired shape and size. Cold deep drawing is forming sheet metals by a press that is likely to have a round punch. The resulting shape is a cup whose (wall) thickness is the difference between the press/punch diameter and the inner diameter of the die. This kind of forming is distinguished by precision, dimensional accuracy, a better surface finish and no waste in the metal in the form of swarf.

Seaming can be one of the most popular techniques used in the permanent mechanical joining of metal furniture parts and products in Egypt which can be developed and improved for easier manufacturing. Its idea is based on joining the edges of the sheet metal product parts by folding two sheets of these parts together and pressing them to form a joint. It takes advantage of the flexibility and pliability of the sheets during and after the forming process in order to ensure folds are brought together to form a strong joint without the aid of other fasteners or welding.

Clinching is a recent technique in cold forming used in permanent mechanical joining of metal sheet furniture parts and products which may differ in metal types and thicknesses. It neither uses welding nor any of the additional fasteners, e.g. screws or rivets. A joint is a form of a lock or an interlock that joins double- or multi-layer sheets in a push-button-like process. It is formed by a press containing two working parts: a punch and a die, between which the parts that need to be joined are located. The joint can be pressed in different geometrical shapes.

The techniques of cold mechanical joining, whether it be by seaming or by clinching, allow better interlocking of the edges of sheet metal product parts, resulting in durable joints that metal furniture assembly can rely on.

Keywords: Clinching -Coining -Cold forming –Parametric -Seaming -Stamping