Production process for a bicycle

The most important part of the product is the diamond-shaped frame, which links the components together in the proper geometric configuration. The frame provides strength and rigidity to the product and largely determines the handling of the product. The frame consists of the front and rear triangles, the front really forming more of a quadrilateral of four tubes: the top, seat, down, and head tubes. The rear triangle consists of the chainstays, seatstays, and rear wheel dropouts. Attached to the head tube at the front of the frame are the fork and steering tube The first step to create this product is to tailor its tubes. The metal is annealed or softened by heating and hollowed out to form hollows or blooms. These are heated again, pickled in acid to remove scale and lubricated. The hallows are measured, cut and precision mitered to the appropriate dimensions. Next the hallows are fitted over a mandrel or rod attached to a draw bench. To achieve the right gauge, the hallows pass through dies which stretch them into thinner and longer tubes, a process called cold drawing.

Next is the Brazing, welding and gluing stage to make this product. Tubes can be joined into a frame either by hand or machine. Brazing is essentially wielding at a temperature of about 871 degrees or lower. The brazing filler is applied and as it melts, it flows around the joint, sealing it. Then comes the aligning and cleaning stage where the assembled frames are placed into jigs and checked for proper alignment. Finishing is the next step where the frames are painted for appearance and to also protect the frame. Chrome plating may also be used instead of paint on components such as the fork blades. Next comes the derailleurs and gear shift levers. Depending on the style of the product the gear shift levers are mounted either on the down tube, on the stem or on the handlebar ends.

Handlebars may be raised, flat or dropped. They are bolted to the bicycle stem which is then fitted into the head tube. Then the brakes are added. The brakes levers are mounted to the handlebars. Seat posts are generally steel or aluminium alloy and are bolted or clamped into position. Wheels are attached to the product frame by means of an axle which runs through the hub of the wheel. Once all these components have been added then the product is ready.