Abstract

In Small and Medium Enterprise Blade craft still using simple tools and manual way, to form a dagger prestige. One alternative to improve efficiency and production quality make machine Crafts blade is a power hammer.

Metal punch machine is designed to be simpler, with style wrought greater results and constant, so that the collision force is necessary calculations, stress calculations in the spring, structural analysis and calculation of the diameter of the shaft so that the engine can run properly and safely.

From the calculation and analysis, obtained the following data: the force of the collision was 195.77 N, from the calculation of the maximum stress occurs in the structure of part 2 is 29.80 N/mm² and from the simulation results of the voltage to a maximum of 28.67 / mm², the difference between manual calculation and simulation results of 3.79%, so the stress is less than the yield strength of the material. The voltage that occurs in the spring of 76.7 N/mm², large deflection of the spring is 7.3 mm, the minimum diameter of the shaft is a large 1.25 cm, while the diameter of the shaft of the planning dimension of 3.5 cm, then the shaft declared safe.

**Keyword:** steel, hammer, blade