LOWER COST IMPROVED QUALITY BARREL MANUFACTURING

TECHNICAL REVIEW

I'd like to begin this Technical Review with a little background orientation on our barrel manufacturing at Ilion over the past years. For many years and up until 1963, we took a long piece of bar stock, up to 35" long, and a volume some 4X greater than required for a finished product; we drilled a hole through the full length of this piece of bar stock. This was followed by successive turnings of the outside diameter until the desired contour was obtained, followed by subsequent reamings of the hole and chamber to finish the barrel. This process resulted in high material costs in chips generated plus expense and labor of drilling and reaming the long hole. In 1963, we introduced the GFM machine forging process. This process permitted us to start with a short drilled blank, some 14" long, whose volume was only about 25% greater than the finished shotgun barrel. Savings in material were considerable. Some labor and expense savings also resulted. A 15% R.O.I. in the case of our shotgun barrels was effected at that time. This was based upon a Capital investment of $150,000 in 1963. Today, this equipment for shotguns has a price tag of over $400,000 per machine.

In 1970, we introduced the Verson process as an alternate system to manufacturing short blanks required for the GFM forging process. Essentially this process starts off with a 2-1/2" diameter x 3-1/2" long piece of bar stock. It is drilled, turned and faced on a screw machine, then lubricated and extruded on the Verson press to a 14" blank ready for the GFM process.

Although the hot forged GFM process is very effective in reducing material consumption per barrel, there remains still considerable