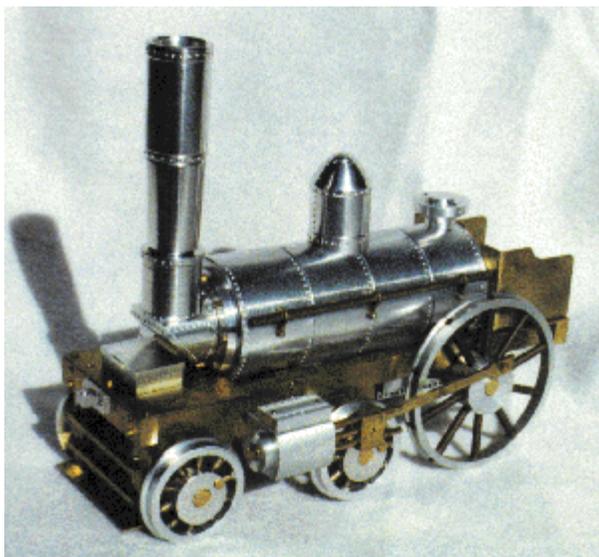


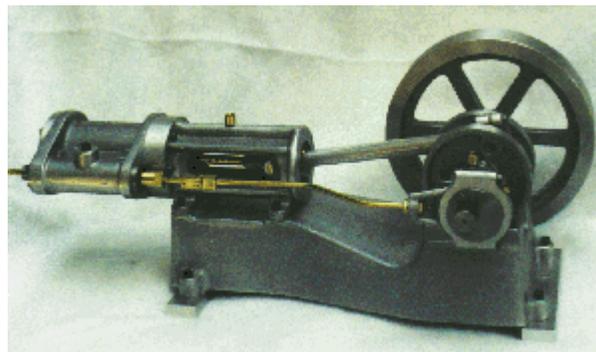
## General Project 1—Steam Engine Projects/Alvin Warren

Mr. Warren is a retired chemical engineer with a background in research and development. He worked for Firestone Tire for forty years and retired in 1982. He had no formal training as a machinist but always had a strong interest in working with metal dating from when he purchased a used 10" Atlas lathe in 1943.



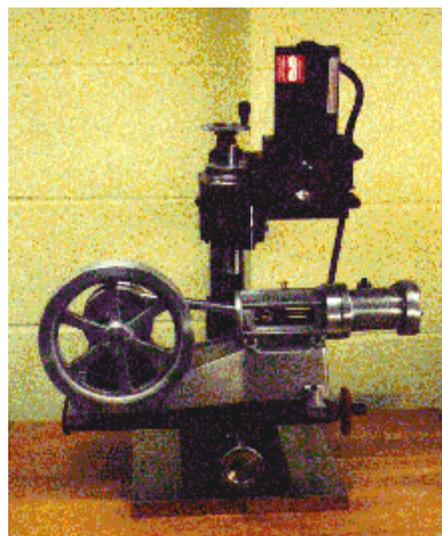
*FIGURE 1*

FIGURE 1—This model 1830 Stevenson steam engine began life in the 1940's and was just recently completed. Mr. Warren turned the boiler and stack from aircraft aluminum left over from fighter plane production in World War II. He scaled it from a pencil drawing he found in a history book. The model remained unfinished until he purchased a Sherline mill about four years ago. He then machined the rest of the parts to finish the locomotive, making this a fifty-five year project!



*FIGURE 2*

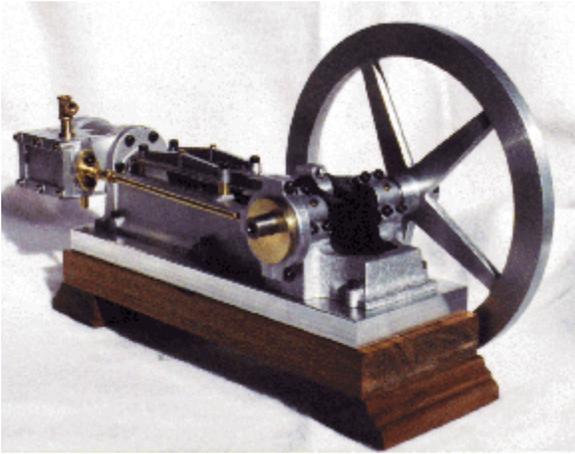
FIGURE 2—This horizontal stationary steam engine is 18" long. The 6-7/8" flywheel was turned on a full size shop lathe while all the milling was done on Sherline tools. It has a 1-1/2" bore and a 2-1/2" stroke. It was made from a casting kit offered by PM Research as Model #6.



*FIGURE 3*

FIGURE 3—The Model #6 steam engine is seen sitting on the Sherline mill. Though some of these parts push the limits of what can be done on a mill of this size, it does prove that modelers are an inventive group who can get the job done with whatever tools are available.

*Continued, Page 2*



*FIGURE 4*

FIGURE 4—A replica of a double acting 1880's steam drilling engine, this model is based on PM Research kit Model #1. It has a 1" bore and 1-1/2" stroke. The 6-1/2" flywheel was turned on a full size lathe. The solid walnut base sets off the aluminum and brass parts to give the model a rich look. All of Mr. Warren's projects exhibit excellent craftsmanship.