

prepare himself for future promotions. When a boy is to learn one branch of the business only, for instance boilermaking, blacksmithing, steamfitting, etc., he is only required to serve four years, but if he is to learn the machine work, and fitting he is required to serve five years and all the machinist's apprentices are indentured for five years. In the case of any apprentice learning boilermaking or blacksmithing he is required to pass an examination in the Master Mechanic's office and the first examination in the apprentice rule book, as it is deemed necessary to have the information contained therein for any branch of service, and in the case of the four-year apprentices being few in number after the first examination, in comparison to the machinists' apprentices, they are instructed in their business by the foreman in charge, and each year they are required to pass an examination in drawing before receiving their advance in wages, the same as machinists' apprentices. The following are a few examples of the contents of apprentices' text-book to be answered by first year apprentice:

What is the weight of a standard shop-hammer (machinist hand)?

At what point should hammer be held for efficient service?

What is the standard length of hammer handle?

How many class of drills are in general use in the shop?

At what degree is cutting end of twist drill ground?

Name the speed for drilling brass, cast iron, wrought iron, and steel, different size holes, with carbon steel drills, and air hardened steel drills.

Give the correct speeds for 1" carbon steel drill in iron or steel or brass.

Give the correct speed for a high speed steel drill iron or steel or brass.

What size should holes be drilled for tapping various sizes of bolts and studs?

What size should holes be drilled for tapping various sizes of U.S. threads (gas threads)?

What lubricant is used for drilling wrought iron or steel?

What is a centre punch used for?

What is a roundnose chisel used for at drilling machine?

Which side of a belt should be run next to the pulley or cone?

What are the general rules to be observed regarding cleanliness and care of machines?

Explain the reading of an ordinary standard measuring rule.

How many, and what are the different classes of callipers in general use on drilling machine?

What tools are necessary for laying off or measuring work at drilling machine?