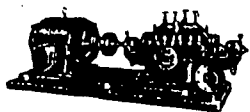




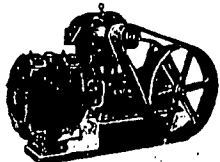
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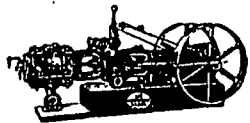
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PIPE INSULATION

Continued from page 220

large, especially if the pipe is big and the price of heat is high. In such cases we may often ask ourselves: What is the permissible deviation from the theoretical thickness?

Studies show that for all normal cases the theoretical thickness can be rounded off downward to the nearest whole number. If weight or space considerations require a change of the most economical thickness, the effect on heat loss must be analyzed before a decision can be made.

Basis. These charts are based on the standard heat-transfer and economical relations for insulated pipes and circular tanks. We do not have sufficient space here to derive or present these relations, but they can be found in any of the standard volumes on heat transfer.

Symbols used in this article are: P = price of insulation, \$ per ft; X = insulation thickness, in.; h_2 = heat-transfer coefficient, insulation to surrounding air, Btu per sq ft hr F ; D_i = diameter of inner surface of the insulation, in.; C_h = cost of heat loss, \$ per ft hr; C_i = cost of insulation, \$ per ft hr.

Editor's Note: Though the procedure suggested for finding dP/dX in this article is theoretically correct, experience shows that there may be appreciable variations in the values obtained because each operator picks a different slope at a given point. A more accurate procedure is to perform this step arithmetically, finding the slope at the desired points by setting up the proper ratios of ΔP to ΔX .

WITH OUR READERS

Continued from page 3

of Steam. For verification you claim that the first issue of Power was during 1884 and was labeled Volume IV. Volume X was issued during 1890, so 4 from 1884 and 10 from 1890 both take you back to 1880. As a well-known columnist would say, "Wanna bet?"

I concede that if a person was born during 1880, he would be 4 years old during 1884 and 10 years old in 1890. But a publication running yearly volumes and starting Volume I in 1880 would be printing Volume V during 1884. If Power Volume IV was issued in November 1884, then it seems safe to assume that the first issue of Steam could not have started prior to 1881.

Actually though, Steam could have begun publication in October 1882, under Volume I, issued Volume II in 1883 and Volume III in 1884. When Power took over as late as November 1884, it seems reasonable to expect that it would start a

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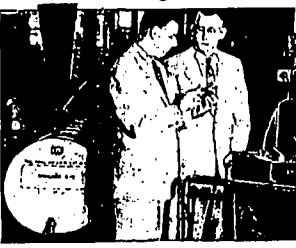
This battery of four Ticotherm Steam Generators dependably and economically serves the power and heat requirements of the 2000-patient Franklin Delano Roosevelt Veterans' Administration Hospital at Peekskill, New York. Ticotherm Steam Generators are always your sound choice for maximum steam output at lowest operating cost. Write for details!



When Byron Nelson stepped aside...

he revealed an interesting thing*
about famous MacGregor irons





Byron Nelson, left, inspects finished golf club heads in the MacGregor Sports Products Inc. plant at Cincinnati, Ohio. He's near one of the machines that is used in making the irons. It's called a broaching machine and at the time the picture was taken it had finished more than 145,000 heads.

When Byron Nelson stepped aside he revealed a large drum of Pure Oil's Koolkut S-7—the superior cutting oil used at MacGregor in this broaching operation. Because the clubs are made of tough stainless steel forgings, the broach bar takes a terrific beating.

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