about an hour and a half the pressure rose to 85 psig with 95 psig at the boilers.

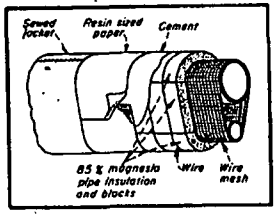
Since the water level had risen considerably the accumulator was then blown down. In later, normal operation the excess water was used for boiler feed and the accumulator blown down only once a week.

It is important to keep the check valves in perfect working order. When boiler pressure drops below accumulator pressure the outlet-line check valve opens and the hot water flashes into steam with the falling pressure. With boiler pressure rising above accumulator pressure the outlet check valve closes and the inlet check valve opens, letting steam enter through the injection nozzle. Incoming steam condenses and gives up its heat to the stored water.

Without the accumulator, boiler pressure would drop to 55 psig when starting a curing cycle. When the accumulator operates, boiler pressure drops to only 75 psig. Another advantage of the accumulator was discovered accidentally. While the vulcanizers were loaded and curing, one of the electrical controls on the boilers burned out, shutting them down for 20 min until a repair could be made. The curing cycle was carried on by the accumulator without interruption, until the boilers came back into service.

Shell of the accumulator was lagged with two inches of insulation, one inch of magnesia block and one inch of asbestos cement. All steam lines were also well lagged.

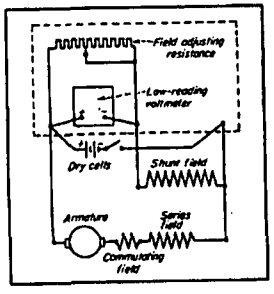
JOHN B THUMAN *Buffalo, N. Y.*



How to Insulate Steam-Traced Piping Effectively

HALF SECTIONS of semicylindrical molded pipe insulation, each half sized for its respective line, should be fitted around the process line and the steam pipe. At the two sides, blocks of the same thickness as the pipe insulation and cut to fit, should be carefully inserted between the semicylindrical sections, as in sketch. Half sections and side blocks should be tightly butted together and firmly fastened in place with iron wire. All joints should be pointed up with asbestos cement, and the entire outer surface covered with a layer of the cement reinforced with hexagonal wire mesh and troweled to a smooth, hard finish. The two lines may be first wrapped with wire mesh before applying the insulation.

Steam-wrapped piping should first be covered with galvanized expanded metal lath, laced in place with iron wire before applying insulation.



Inductive Kick Checks Motor Compounding

DC MOTOR DRIVE is coming back because of flexibility and accuracy of electronic control. Since these motors usually have series fields the old question comes up of how to check the field connections to be sure they are cumulative. The old method of starting with the shunt field open and getting the same rotation proves too dangerous.

The sketch shows a method I developed during the war to use when the controller is several decks below the motor. All that is needed is a low-reading voltmeter of the analyzer type and two dry cells. Connect the voltmeter across the shunt-field rheostat and the batteries across the armature and series field. The following action depends on the inductive coupling between the field windings.

With meter and battery polarities connected to give up-scale readings, make and break the battery circuit. If the fields have the right polarities the voltmeter will kick down below zero when the circuit is made and then show a steady up-scale reading, which should be in the same proportion to battery voltage as the resistance across which it is connected is to the total shunt-field circuit resistance.

MAX PAFENBACH *Dalton, Mass.*



Continuous Walkway Saves Climbing

BY JOINING ADJACENT ends of walkways provided with a battery of gas engines in a power plant, a continuous walkway was developed that reduced the amount of climbing by the oilers.

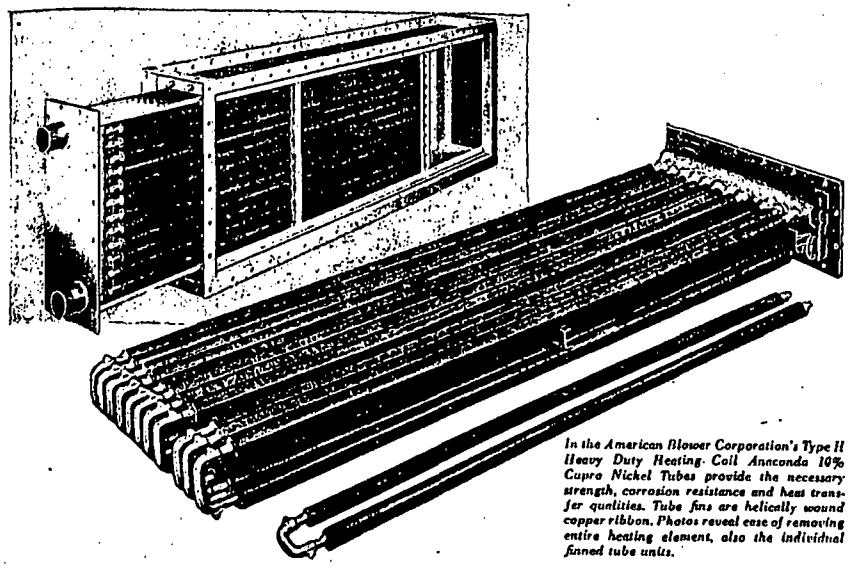
The short connection units, carried on the ends of the usual walks, also served as points for installation of the ladders or stairs giving access to the walk. This plan's saving in the number of ladders was realized without decreasing accessibility to any unit while always having ready avenues of escape in case of plant disaster.

The ladder sections, together with the short connecting bridge, are removed easily if the overhead crane must be used in an area normally occupied by a unit. In such cases the walks are blocked off and the remaining ladders continue to give access to the platform.

ELTON STERRETT *Houston, Texas*

CONTRIBUTIONS INVITED

Power pays $20 for each item published in "Power Engineers' Notebook." Here's your opportunity to cash in on those professional tricks you have successfully used in the past, and help your fellow power engineers at the same time. Your manuscript need only be in rough form, giving all facts, with sketches in pencil. We will edit them for publication. This department covers power problems in design, operation and maintenance.



In the American Blower Corporation's Type H Heavy Duty Heating Coil Anaconda 10% Cupro Nickel Tubes provide the necessary strength, corrosion resistance and heat transfer qualities. Tube fins are helically wound copper ribbon. Photos reveal ease of removing entire heating element, also the individual finned tube units.

ANACONDA 10% CUPRO NICKEL TUBES

for heavy duty industrial service

THE AMERICAN BLOWER CORPORATION'S Type H Heating Coil, designed for heavy duty industrial work in which steam pressures up to 350 pounds and temperatures as high as 600° F. are used, is equipped with Anaconda 10% Cupro Nickel Alloy 754 Condenser Tubes.

This moderately-priced copper-nickel alloy, containing 10% nickel and 0.75% iron provides good corrosion resistance and heat transfer qualities. Tubes of this composition are in service in large power stations where operating conditions are particularly severe. It is one of four standard Anaconda Copper-Nickel Alloys furnished for heat exchange applications.

* * *

All told, there are eleven standard and several special Anaconda Condenser Tube Alloys—ranging from Deoxidized Copper and Arsenical Admiralty to Super Nickel 702 (30% nickel). The services of our Technical Department are available at all times to assist engineers and fabricators in the selection of alloys for heat exchange use. Please feel free to consult us, and write for a complimentary copy of Anaconda Publication B-2.

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