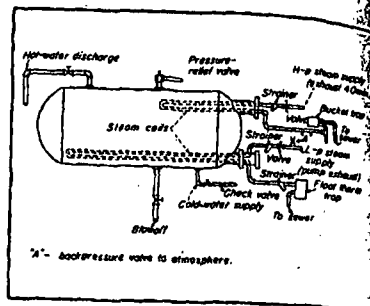
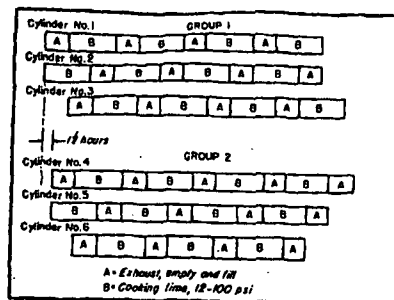




the above chart on the basis of 9 hr. per cylinder charge. Here we see that as No. 1 cylinder completes the 100-lb cooking operation it is exhausted into No. 2 cylinder, 2 exhausts into 3; but 3 exhausts into 1, and the cycle repeats on group 1.

Note that the chart shows the six cylinders divided into two groups with group 2 delayed 1½ hr after group 1. This difference is to avoid the heavy steam flow required in warming the contents of the cylinder after the exhaust has been shut off.

With the data HW has supplied, my calculations indicate that his 200-hp boiler is not operating at rated capacity. I suggest he look to that region for considerable improvement.

See *Rock Products* of October 1946 for further information. John A. Graham, Pittsburgh, Pa.

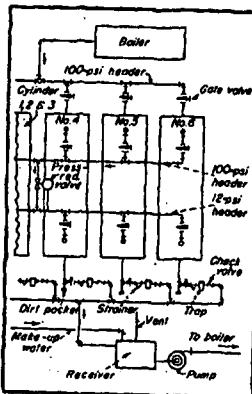
### Connect Cylinders Through Pressure-Reducing Valve

SINCE HW's boiler has scarcely sufficient capacity to cook two cylinders at once and each cycle requires 12 hr, each pair of cylinders is idle for several hours between cycles. Therefore it is not too important that exhausting be done in 40 min. Assuming this is true, instead of exhausting to atmosphere, HW can exhaust through a pressure-reducing valve into the next pair of cylinders to be cooked. When these cylinders are through with their 100-psi cooking they can be exhausted through the pressure-reducing valve, which is set at 12 psi, into the third pair of cylinders, and so on around.

It is possible that before the 4-hr 100-psi cooking is completed, the concrete blocks will be saturated with heat to the point where there will be some

excess boiler capacity. At this point the valve may be opened, allowing steam to pass through the pressure-reducing valve into the second pair of cylinders, starting their 12-psi cooking before the first pair are through. This not only saves steam but by overlapping cycles, production is increased.

Evidently HW has attempted to recover some condensate, as he mentions using an injector. A boiler feedwater pump can be installed that draws water out of an open receiver. The curing cylinders can be drained through steam



traps, as shown in above sketch, and their condensate allowed to flow into this receiver. Additional makeup water can be pumped from the river into this same receiver by a separate pump. If W. Winget, Tulsa, Okla.

### Install Feedwater Heater

THERE ARE SEVERAL WAYS HW can save steam. As it is exhausted for only 40 min at the end of the curing cycle, continuous operation of a feedwater heater is unwarranted. Condensate from the cylinders may be used for heating purposes by piping it through a counter-flow closed heater installed in the main condensate-discharge line.

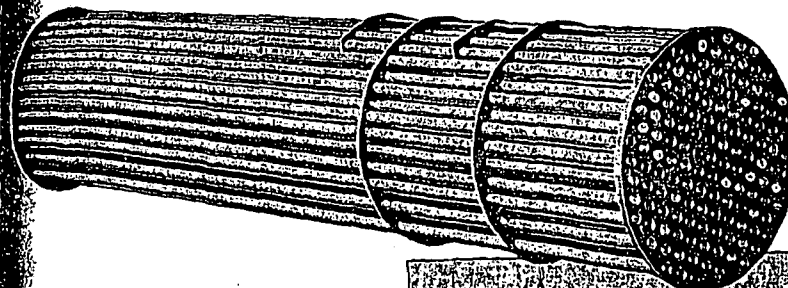
For a steam-driven pump, I suggest the method shown in above sketch. It entails a larger investment but pays for itself over a period of time. Remember that saving from the installation of a feedwater heater in the average plant is about 10 to 15%. For every 11 F added to temperature of the feedwater using exhaust steam, there results approximately 1% fuel saving.

As the boiler has 2000 sq ft of heating surface we can assume its hp is about 200, evaporating between 6000 and 6900 lb of steam per hour at rated capacity. The storage heater would have to be large enough to handle 831 gal of water per hour. As the sketch shows, provision is made to use the steam that is exhausted at the end of the curing cycle. In this way, all available exhaust steam is used. J B Therman, Buffalo, N. Y.

### Rearrange Operating Time

HW CAN SAVE STEAM from his curing cylinders by rearranging for proper coordination of his process on a continuous-flow basis. Fortunately six of his cylinders are involved, making arrangement simple. During each 2-hour period a set function is being performed in each of the six cylinders. Let us say, for the period between 12 noon and 2 pm, cylinder 1 is being filled, cylinder

(Continued on page 148)



In this vacuum still, tubes of ARSENICAL ADMIRALTY mean extra durability

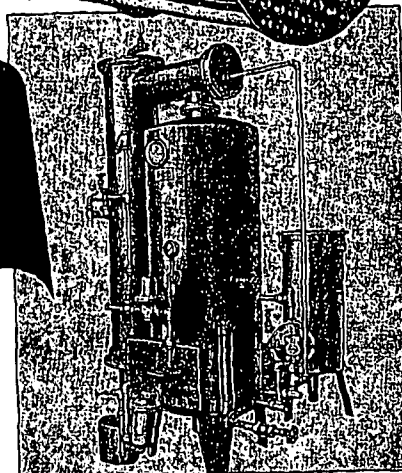
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