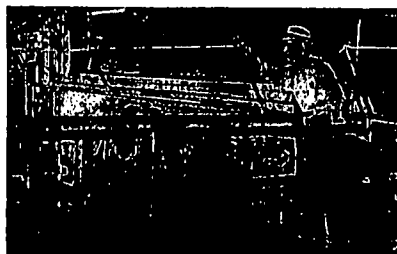


PRACTICAL IDEAS...here's the trading post for your



Safe Way to Blow Water Column

BOILER-WATER COLUMN should be blown down at least every shift. It's the only sure way to know level shown is correct.

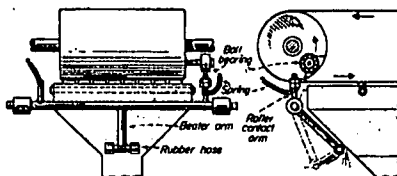
Fire-room foreman in photo is blowing column from upper platform. Upper and lower cocks on gage glass have long reach rods to catwalk. By turning valve lever on end of rod, reach rod revolves, actuating valve.

To blow a column correctly, close top cock and open drain valve on blowdown

line. Then all water blows through bottom cock. Close bottom cock, open top, so only top cock blows. Now make sure both cocks are open. Close drain valve on blowdown line.

This is only sure way to clear both gage-glass connections. Many tubes have failed because a column connection was plugged—given false reading in glass.

BILL DAVIS
National Safety Council, Chicago, Ill.



Automatic Beater Unplugs Coal Chute

WE HAD TROUBLE with chutes beneath belt scrapers on our coal conveyor belts. They became plugged when handling wet coal. Fine wet coal removed by scrapers built up in chute, didn't flow.

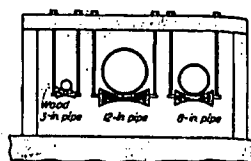
To eliminate trouble, we built the chute beater shown. Cross shaft and beater arm are made of 3/4-in. double strength pipe. Roller contact arm is a 2-piece arm of short pieces of 3/4-in. pipe welded to the cross shaft. A 1/2-in. nickel chrome nut's welded onto upper end. By using a short length of 1/2-in. rod threaded to fit this nut, contact arm

can be adjusted to vary length of beater arm's stroke.

Beater head is a piece of 1-in. pipe about 3 in. long, with 2 pieces of rubber hose over ends that prevents metal-to-metal contact from wearing chute.

Tripping roller is a 3-in. ball bearing, mounted on a supporting bracket. Bracket in turn is welded to inside of conveyor-belt pulley. Bearings for cross shaft are small lengths of 1-in. pipe, supported by arms welded to conveyor frame. This beater works like a charm.

O HLOKSHI
Lansing, Iowa



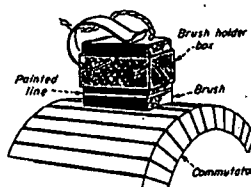
Thawing Frozen Condensate Line

WHEN 1200 FEET of 3-in. diameter condensate line from our mill froze, we hooked on 400-amp capacity welding machine. After two days, not even a hundred feet thawed.

We called on local power company to give a hand. They had a 37.5-kva single-phase transformer and some 0000 cable they hooked to 4900-v supply. Secondary of 20:1 ratio transformer was hooked on to 3-in. pipe and we went to work.

We didn't get far until one of our men noticed an arc running down support rods on pipe hangers, sketch. That showed current was flowing through 3-in., 8-in. and 12-in. pipes—greatly reducing heating effect. After placing wood blocks under 8-in. pipe all along hangers, as shown, entire pipe thawed in only three hours this time.

G E BOYHAN
Ticonderoga, N. Y.



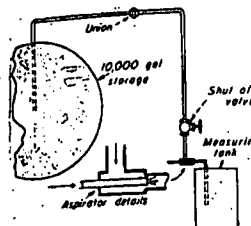
Brush Marking

MARK A THIN LINE with white or yellow paint across face of motor and generator brushes used in box-type brush holders, as shown. Place line on brush so bottom of holder box will coincide with line when brushes reach the end of their wearing distance. Then time for brush replacement is automatically indicated. When the colored line appears below the edge of brush-holder box, replace the brush with new.

T TRAIL
Catoonsville, Md.

operating and maintenance short cuts

STEVE ELONKA, Associate Editor



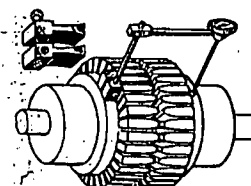
Handling Acid Safely

WE HAVE SULFURIC ACID stored outside in a 10,000-gal tank. Acid was piped from bottom of tank to measuring tank inside building. Method of handling created various hazards. To overcome, we installed a siphon, sketch.

To start siphon, we made aspirator out of pipe, sketch. But acid was so heavy that we bought a more efficient aspirator. This one works on compressed air. By using this setup, a break in line above acid level in 10,000-gal tank will break only the siphon.

It's so piped that acid leak below level will run into measuring tank. When the line plugs, we open union, and either rod out the lines or take them down to clean, or replace. No worry about acid flying over someone.

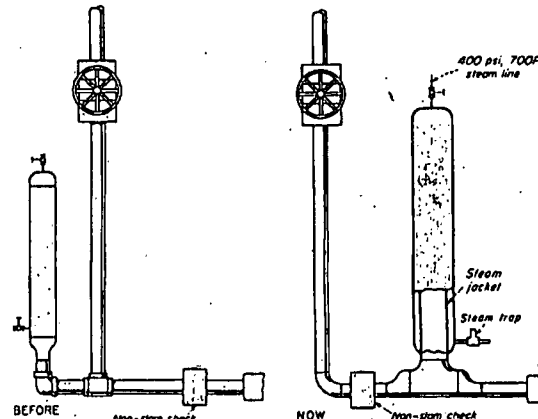
K. M. WHITE
Clinton, Iowa



Lining Up Grid Spring-Coupling

SKETCH SHOWS method I use for getting indicator reading on grid spring-couplings. This method is reliable, also very simple and compact where couplings are close-connected. There's little chance of getting a false reading as with makeshift devices. Easy attachment for a quick check on shutdown is best feature. Clamp is easy to make.

E R BRIGGS
Dunedin, Fla.



Steam Cushions Better Than Air Chamber

TROUBLE DEVELOPED in a steam-pressure-reducing and desuperheating station. Pressure was 400 psi, at 700 F, which was to be reduced to 150 psi saturated.

A variable-displacement pump driven by an electric motor furnished water for cooling spray, but water hammer set up in this pump. Hammer was so severe that we used boiler feed-pump instead. This set off a series of troubles. I'll only mention a few.

Water hammer was severe and destructive. Oil lines on pump broke off at fittings. Air control lines for desuperheating station also failed. Piping throughout plant vibrated, and controls were erratic. No one would risk operating pump for more than 10 or 15 min.

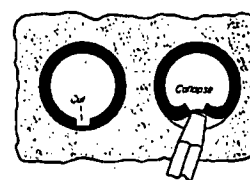
Pump had been installed with a non-

slam check on discharge. Later a T had been installed with an air chamber, drain and valve on top of chamber to admit air when the chamber was drained, sketch.

It was easy to check that little air space remained in chamber when pump operated at 500 psi. So remaining air was quickly absorbed. This was checked by installing a gage glass. It was my belief that if air chamber was large enough, water hammer would stop. We installed new chamber. It is not filled with air, but with steam, which is formed by evaporating the water with a steam jacket around chamber. Jacket is filled with steam at 400 psi, 700 F.

Theory proved correct as there's no further trouble with water hammer.

E H ROSEN
Toledo, Ohio



Cutting Out Boiler Tubes

FIRST, CUT TUBE to be taken out, as shown. Then knock up towards center, which usually makes tube easy to withdraw.

Take care not to cut all the way through tube or you might harm the tube sheet. Collapse tube all around.

T H CARR
Shipley, Eng.
(Continued on page 125)