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STEAM ENGINE

**SAVE**  
BY USING  
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Make your STEAM do two big jobs... eventually meet them at the same place. With proper heat balance your steam can provide FIRST, power for driving equipment, and SECOND, heat units needed for processing or heating. Use boiler steam to run a Troy-Engberg Steam Engine. THEN use the exhaust in your heating or processing plant. Drive your pumps, elevators, generators, blowers, or compressors with By-Product Power. Use a Troy-Engberg Steam Engine as a reducing valve and your power cost saving will pay for the engine in a very short time.

Send for Bulletin 306

**TROY ENGINE & MACHINE COMPANY**  
Established 1870  
2500 Railroad Avenue Troy, Pennsylvania

**TROY-ENGBERG**  
STEAM ENGINES • GENERATING SETS • GENERATORS

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charge valves. (3) unequal distribution of work between crank and head ends of steam cylinder caused by a slow-acting dashpot or by a leaking crank end steam valve. (4) excessive clearances on crankpin and crosshead bearings caused by changing the brasses, but not properly fitting them to the worn pins.

Causes (1) and (2) may be detected by reference to indicator diagrams taken from air cylinder, followed by inspection of air-valve chambers for evidences of broken or plugged valves. Cause (3) requires inspection of dashpot mechanism for evidences of a plugged air-release port, a broken return spring or an air leak into the vacuum chamber. Steam valve should be removed and edges of valve and seat inspected for erosion caused by accumulations of water in cylinder or valve chest. Check operating methods to determine if cylinder and steam chest are properly drained before starting the engine. Cause (4) requires that leads be taken from crankpin and crosshead bearings for checking clearances. These clearances should be about one thousandth of an inch per inch of pin diameter. Total clearance may be reduced slightly if the brasses are scraped to a good bearing on the pins.

After making inspections and tests outlined AJS should check his valve settings with the manufacturer's marks.—Milton N. Kraus, Sunnyside, L. I.

#### Check Nut on Piston Rod

We had a vertical Corliss engine in 1925 that pounded badly on bottom center. At times it pounded on every revolution and then ran quietly for several seconds. Occasionally it pounded every other revolution for minutes at a time.

Investigation showed there was no sufficient thread on the piston rod, and bottom side of nut did not actually bear on the piston. Since the nut was counterbored into the piston, one could not see when it came into contact and its tightness on the thread was mistaken for its bearing on the piston. I suggest AJS check this point.—C. A. Wilkes, Oaklyn, N. Y.

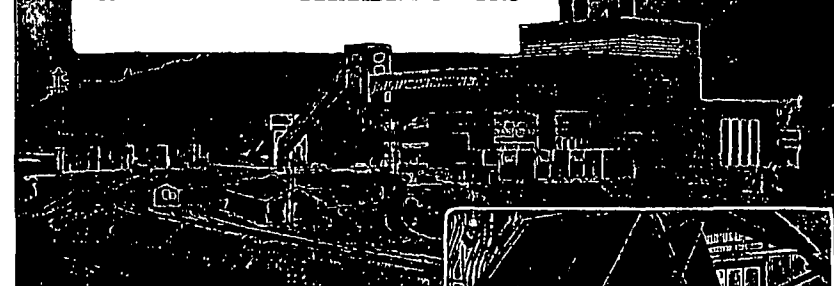
#### Advance Eccentric To End Pounding

Indicator cards taken by AJS show the reason for engine's pounding. If it weren't a vertical unit it would pound on top center as well as bottom; weight of the line of parts stops that.

Both ends of cylinder show late steam and exhaust timing, which means that

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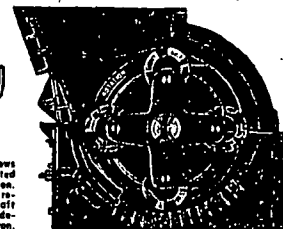
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