The Thresherman's Question Drawer

Answers to Correspondents

L. Y. Q. I have a 30 h. p. Woolff compound engine that exhausts through heater. What would be the result if I take the heater off and exhaust through pipe instead? Will the exhaust be sharper? It is now flat.

A. A sharp exhaust is a sure sign of poor economy. It takes back pressure to produce a sharp exhaust. If your steaming capacity is good leave the exhaust as it is. If not, the exhaust nozzle can be slightly reduced. The heater will not likely have any effect on the exhaust as the opening through it is about the same as the exhaust pipe.

G. W. Q. When my Woolff reverse gear is hooked up to one-half or three-fifths it will run smooth, but hook it out to three-fourths or full cut-off, it will jerk the reverse lever in the quadrant as if it would break it. What is the cause?

A. When a Woolff gear is cutting off at a late cut-off the reversing guide or link is at a more obtuse angle to the eccentric than when it is cutting off at an early cut-off. Notice when you have the reverse lever in the centre notch the guide is vertical and offers little resistance, but as the cut-off is increased the angle of resistance becomes greater and therefore makes it work harder. Plenty of oil to the slide valve will help this "jerk."

C. B. Q. What is the matter with my governor? It is a Waters, 1½ inch. I cannot make it run the engine slow enough when doing light work, such as sawing wood. The stem seems to be long enough, as I can screw the valve down to bottom of seat. Should the valve have a solid bottom or an open one? This valve is open at the bottom. It will let the engine run from three to four hundred revolutions per minute. It will hold the engine when doing heavy work, but does not govern it well.

A. The plan of changing the speed with a Waters governor is the changing the valve. When a slow speed is required the valve is screwed down into the seat, thereby cutting off the steam with but little movement of the balls and springs. The valve opens but little in this case and there is not much power in the engine. When the governor valve is set to run the engine faster the valve is set to open farther, thus having to move the balls and spring farther. To get better results at a low speed the better plan is to put a smaller pulley on the governor; the valve can then be set to open farther.

O. C. Q. What makes the crosshead in an engine run out of true? Top shoe runs outside of slide and bottom runs inside of shoe.

A. We understand from your question that the top shoe of the crosshead extends out over the guide and the bottom shoe extends in. If this is the case there can be no trouble come from this cause. The important thing to note is that the crosshead is the correct height. This can be found by watching the piston rod while the engine is running. If the stuffing box works up and down the crosshead is either too high or too low, and when the crosshead is properly adjusted the rod will run true.

G. R. Q. In looking about for a 20 h.p. engine and studying the different catalogues, I was considerably bothered. They ranged in stroke from 10 to 13 inches and in diameter from 8½ to 10 inches in single engines. It seems to me there must be considerable difference in power of these engines. I understand that speed and pressure make quite a difference, but would like to know the relative power of a number of 20 h. p. engines figured at the same speed and pressure. Here are all the sizes of 20 h. p. engines I could find: 10 x 10, 8¾ x 12, 9¼ x 11, 9 x 10, 9 x 12, 8⅞ x 12, 10 x 10¼, 8¾ x 10½, 8½ x 12½, 9 x 13, 10 x 11, 9½ x 10, 8¾ x 10, 9 x 11, two 6¾ x 10¼ and two 6½ x 12. Say the 10 x 10 engine is 20 h. p., and figure them all at that rate, that is, at the same speed and pressure.

A. It is not exactly fair to figure a lot of engines at the same rate, as some engines are designed to carry a higher pressure and some to run faster than others. However, we can make a comparison of the sizes. The 20 h. p. is, understand, nominal rating and if we consider the 10 x 10 engine 20 h. p. the 8¾ x 12 is 18½ h.p.; the 9¼ x 11, 18½ h.p.; 9 x 10, 16 h.p.; 9 x 12, 19½ h.p.; 8⅞ x 12, 19 h.p.; 8½ x 12, 17 h.p.; 10 x 10¼, 20½ h.p.; 8¾ x 10½, 16 h.p.; 9 x 13, 21 h.p.; 10 x 11, 22 h.p.; 9½ x 10, 18 h.p.; 8¾ x 10, 16 h.p.; 9 x 11, 17½ h.p.; two 6¾ x 10¼, 18½ h.p., and two 6½ x 13, 20 h.p.

It will be seen that there is five nominal h.p. difference between these engines. The largest one may be the slowest in speed and carrying the lowest pressure and the smallest may run the fastest and carry the highest pressure, thus making the power about equal.

P. G. Q. I am running a 30 h. p. stationary engine with a 40 h.p. internally fired boiler, to pump water for irrigation purposes. My object is this: I would like to use the steam from the exhaust pipe to warm the water before I feed it to the boiler and, by doing so, save fuel. The water