

have the plugs made to fit? Would a brass bushing be better than iron?

2. Can the bolts that are tapped in the steam and water space of a boiler be tightened?

A. It would not be good practice to bush the hole for the fusible plug, as the plug would extend farther into the fire and would give trouble in melting out when with water on the crown sheet. This could be done by making the bushing flush with the crown sheet; but as the crown sheet is thin this can hardly be done. The best way to fix it is to tap the hole larger and to have a special plug made to suit the hole, or to plug the old hole up and drill a new hole to suit a standard plug.

2. The stay bolts can be made tight by holding a heavy bar or sledge on the one end of the bolt while the other end is hammered with a hard hammer. Both ends of the bolt should be treated in this way. A slight leak can sometimes be stopped with a calking tool.

Q. R.E.S. How can I remove oil that is on my separator so that repainting will stick; will wagon paint be good to put on?

A. Wash the greasy parts with gasoline or naphtha. Paint, such as is used on wagons, would be very good.

Q. S.A.S. Could a wooden float be placed in water gauge column to advantage?

A. A wooden float in a water column would soon get water soaked and sink to the bottom of the column.

Q. T.E.T. How would you fasten the engine solid on the boiler, as it is a little loose? Some say to steam it up to low pressure, and then draw the studs down, but I think that if they were drawn cold, there wouldn't be any expansion that would give loose after tightening the bolts. Which is your opinion?

2. What would you use to take all burnt on grease and oil off the engine, boiler and jacketing?

3. What would you use to paint the boiler end and smoke box with? What would you use for paint on jacketing, just a common black paint, or something special, and how would all these be applied?

A. The suggestion that you draw up the bolts when the boiler is warm looks good; as there is likely to be less strain on the engine and other brackets if they are made fast when the boiler is expanded, as this is when the work is done.

2. Concentration lye will take the burnt grease off the engine, boiler and jacket.

3. Coal tar or some sort of asphalt paint is as good as anything for the boiler and jacket. Apply with a brush in the regular manner. If it is done in the winter a little heat will help.

Q. E.A.K. How are the side valves set on a Reeves compound engine; and how are eccentric and rocker arms set to be re-babbitted? Must the reverse arm be in centre line with eccentric, like on Woolff valve gear.

2. What is the best way of finding the clearance in the cylinder without removing connecting rod and crosshead pin on Reeves engine?

A. Directions for setting eccentric and valves on a Reeves engine. The eccentric is keyed to the shaft and is likely not out of place, but should it be necessary to set or test the eccentric, it can be done by the following: Set the engine on dead centre, then the eccentric should be nearly opposite the crank pin or at a place that will bring the pin in the lower part of the eccentric yoke, central with the tumble or reversing shaft. To test this more accurately, have someone pull the reverse lever backward and forward while you watch the valve or valve rod. If the eccen-

tric is in its proper place the valve rod will not move while the reverse lever is pulled backward and forward when the engine is on dead centre. This should be tested on both centers of the engine. If the one center shows up all right and the other does not, this would indicate that the tumble shaft is either too high or too low; more likely too high, which can best be fixed by placing a liner between the engine frame and the rear saddle, which will raise the crank shaft. After the eccentric is set, all there is to do with the valve is to see that it has the same amount of lead on each end, which will be about one-sixteenth of an inch. The valve is set on the stem by the clamp blocks. There is another part that should be looked after, and that is the reach rod, or the rod that connects the reverse lever with the tumble shaft. This rod simply controls the cut off. If not right, the forward motion will not have the same cut off as

will the backward motion. An easy way to test this is to put the reverse lever as far as it will go one way, and note what the maximum port opening is. Then place the reverse lever to the extreme opposite end and again note the maximum port opening. The case will suggest whether the reach rod should be lengthened or shortened, which can be done by means of the thread on the ends of the rod.

2. Turn the engine on the dead center furthest from the cylinder, screw the piston rod into the crosshead until the piston strikes the end of the cylinder. Then turn the engine on the other dead center and measure from the piston to the end of the cylinder. The difference between this measurement and the distance the cylinder head projects into the cylinder is the sum of the clearance on both ends; and one-half of this amount is the clearance on each end. The clearance on each end of a Reeves cylinder is three-sixteenths inch.