THE CANADIAN THRESHERMAN AND FARMER LAGE AL AL PENBERTHY THE PENBERTHY PENBERTHY PENBERTHY SIGHT-FEED STEAM LUBRICATOR PENBERTHY Specially designed for Threshing and Portable Engines, Steam Pumps, Saw-Mill and Hoisting Engines, etc. The Best by Test for the Great North-West PENBERTHY IF YOU WANT the Lubricator that's easy to attach-easy to operate-that works when you want it to work - that has the best sight feed feature ever seen on a Lubricator-that has few working parts-that has a drain valve and a filler plug that can't lose off-that will work in cold weather-in short-a Lubricator that will PENBERTHY give you satisfaction the year round-YOU WILL BUY THE KING. Note the design and construction of the King Lubricator-neat, compact and simple. Notice specially the position of the sight feed glass, at the top of the Cup ERTHY where it's easy to see the oil feeding at a long range. This is an up-drop oil feed the same as found PENBERTH in the more expensive Lubricators. The Sight Feed Glass will not break easily and can be removed KING quickly by simply unscrewing the cap on the top of the sight feed chamber. All leading jobbers and dealers stock them. Write for booklet describing fully the King Lubricator. MANUFACTURED BY The Penberthy Injector Co. Windsor, Ont.

PENBERTHY PENBERTHY PENBERTHY PENBERTHY PENBERTHY PENBERTHY PENBERTHY PENBERTHY PENBERTHY

strain is better distributed, while more smooth and even working in secured. The cooling surface is less, and the range of temperature is less in the high pressure cylin-der than in a single cylinder engine with equal expansion, hence the diminished loss by condensation .- Ex. from Practical Engineer.

of ed ial nd

ps. for te,

ips his

are ost

m-mp ars

0.

Vie -

ret

Y

.10

t of

irer

8.00

fan.

R

NAME AND A

IPEG

ve

nce Valve

the power

tyles and

promptly

I.SA.

**\BERTH** 

PENBERTHY

M. B. Q. Our engine steams up easy, but, just as quick as the throttle is opened to run, the engine drops 10 lbs. of steam at once, and keeps on going down even until she has not got power to pull.

2. What is the matter with my engine? I can have 120 lbs. of steam, steam gauge and pop valve in good condition; she runs and pulls separator, but as soon as they feed the machine she will not run and pull her load with 120 lbs. of steam. What can the cause be?

There must be something Α. wrong in the cylinder. The piston may leak badly or the valve may be out of place, which may be caused by the eccentric being in place as well as the not valve slipping on the stem. There may elso be something wrong with the steaming qualities of the boiler. For instance, if the exhaust nozzle was not small enough, or if it would not blow the exhaust steam up the Any one of these things stack would cause the engine to perform as you describe.

2. In this case the engine may be too small for the work, or the valve gear may out of place, or there may be a stoppage of the steam caused by a defective governor or throttle. A stoppage in the heater or exhaust pipe may also cause the trouble, or perhaps the exhaust nozzle is too small. With these suggestions maybe you will be able to run down the trouble.

P. M. Q. What is the cause of a safety plug in a boiler melting when there is water over the crown sheet?

A. This sometimes happens when the plug does not extend far enough through the sheet on water side, and projects too the far from the sheet on the fire side, and when the tin is partly melted out, in time the small part which is in the sheet is blown out. A fusible plug should extend at least three-eigths inch into the water, and the cavity for the tin made cone shaped, so that the pressure tends to keep it tight and there will be no danger of melting or blowing the plug out when the water is over teh crown sheet.

H.B. Q. What is meant by mean effective pressure?

2. How do you get it?A. Mean effective pressure means the average pressure exerted on the piston throughout the entire stroke of the engine.

2. Mean effective pressure is arrived at by the aid of the engine indicator, which records the pressure at all parts of the stroke with a pencil on a card.

G.H. Q. I would like to have you send me if you will, the rules for finding the h.p. of an engine.

The rule for figuring the Α. h.p. of an engine is to multiply the area of the piston in inches by the piston speed in feet per minute by the mean effective pressure and divide by 33,000; this will give the indicated h.p. The mean effective pressure arrived at by the aid of the indicator. To arrive at the nominal h.p. as used by traction engine builders in this country mean effective pressure of 20 lbs, can be used.

The heating surface of a boiler is computed in square feet. compute the surface in the tubes multiply the circumference in inches of the outside by the length and by the number of tubes, and divide by 144. This will give you the area in square feet. Find the area of each sheet in the firebox above the grate line, deduct the flue holes, and fire door hole, also the front tube sheet. Reduce this also to square feet. After having the total surface in square feet divide by, say, 12, which will give the h.p. Some builders have given 10, some 11, and some 12, and some 13 square feet of heating surface to the h.p.

**D. D. Q.** I have a compound engine which has a double oil pump, one part of which supplies the high pressure and other part supplied the low pressure cylinders. Both plungers of the pump are driven with one shaft, there being two eccentrics on the shaft. Now the trouble is, both pumps do not deliver the same amount of oil yet they should have the same capacity, as the plungers are the same diameter and have the same stroke. The pump has no valves in it, but two valves on the dclivery pipe leading to the high pressure cylinder, and one in the pipe leading to the low pressure cylinder. The plunger which delivers the oil to the high pressure cylinder gets the lesser amount of oil, and in fact to get a sufficient quantity to lubricate it properly, I have to run the pump so fast that the low pressure cylinder is flooded with oil, and in consequence there is a waste of oil. I have changed the conoil. I nections and valves of the pump so that the plunger which delivered oil to the low pressure cylinder, was connected to the high pressure cylinder thinking this would help, but the trouble was about the same. The low pressure cylinder got much more oil than the high pressure cylinder.

Now, how can I get the pump to deliver the same amount of oil to each cylinder? If the pump is tight, should the difference in Continued next month