

86. Duplex Top Check and Stop-Valve.—The principal reason for placing the boiler check-valve on top of the boiler is that certain impurities in the feedwater, when it is delivered to the boiler below the water level, will form a hard scale on the sheets, whereas if the water is delivered into the steam space, the impurities will be deposited in the form of a mud that can be blown out.

Also, the water in falling through the steam space becomes heated and does not have such a cooling effect on the sheets as when the water is delivered on the side of the boiler. The two check-valves are combined so as to simplify their application to the boiler.

The arrangement of the check-valve body when applied to the top of the boiler is shown in Fig. 41 (*a*). The extension *a* with side openings *b* to deflect the water from the dry pipe forms a ball joint with the top sheet *c*, and the flange *d* of the check-valve body is pulled down steam-tight against the extension *a* by the stud and nuts shown. The delivery pipes are marked *e* and *f*. Either of the boiler check-valves can be removed by unscrewing the caps *h* and *i*. The stems of the stop-valves used to shut off the steam from the boiler when necessary to remove the check-valves are marked *j* and *k*.

A part sectional view of the check-valve body *g* is shown in Fig. 41 (*b*), in which the stop-valve *k* is shown turned around out of its true position in order that the arrangement of the passages in the check-valve body may be more easily seen. The

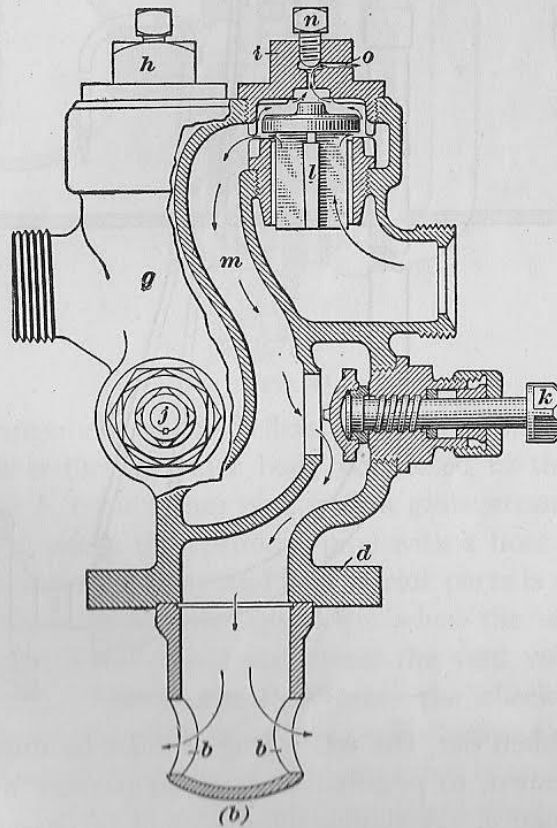
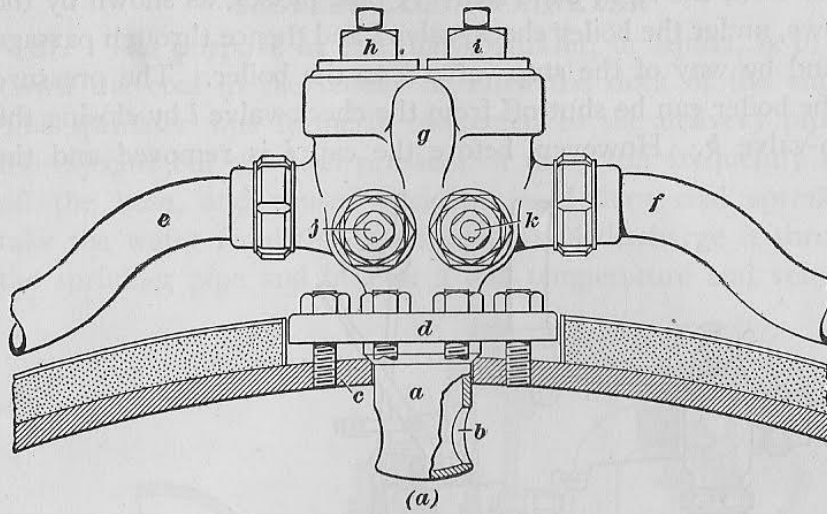


FIG. 41

water from the right-hand delivery pipe passes, as shown by the arrows, under the boiler check-valve *l* and thence through passage *m* and by way of the stop-valve *k* to the boiler. The pressure in the boiler can be shut off from the check-valve *l* by closing the stop-valve *k*. However, before the cap *i* is removed and the

check-valve taken out, the relief plug *n* must be unscrewed far enough, as shown, to permit the steam in passage *m* to escape through passage *o*. A similar arrangement of passages, check-valve, relief plug, and stop-valve is contained in the other half of the check-valve body.