MACHINERY AND ENGINEERING.

THE YOUNGSTOWN STEAM TRAP.

The accompanying illustrations and description relate to the Youngstown steam trap, manufactured by the Youngstown Steam Trap Co., Pittsburg, Pa.

Figure 1 shows all the different parts of the trap. There are no floats, levers, pins, valves or buckets to get out of order or cause trouble, and in use they practically need but the minimum of care or attention.

Figure 2 is a cross-sectional view.

A—Pipe in which the counterweight is placed for operation. B—Body of trap. C—Discharge pipe. D—Cylinder head on steam end of trap. E—Head on balance end of trap. F—Ball counterweight. G—Supporting bracket, on which the trap rests while filling. H—Supporting stand, on which the trunnion is fastened. I—Supporting bracket, on which the trap rests while discharging.

The operation of the trap is as follows:—The condensation passes into the pivot pipe at U (see Figure 3), from thence into the receiving vessel through the ports R and P. When the receiving vessel is filled with water the trap rocks from the arm G, on which it rests while filling, to the arm I, and the water is discharged from the trap through the discharge pipe C and J, the discharging end of the pivot pipe. While the trap is rocking from the arm G to the arm I it moves the ball valve L off the port M, an operation which allows the water to pass from the discharge pipe C into the pivot pipe and to discharge at J, the end of the pipe.

In discharging, before the trap reaches a horizontal position, the ball F rolls from its position in the balance end of the trap at E to the middle of the trap which gives the water end the aid of the counterweight to enable it to discharge. When the water has all been discharged from the trap, the balance end being heavier than the water end causes the trap to rock back to its original position for filling, the ball F rolling back to its position at E, in the balance end of the trap. In case of a gush of water, the trap remains in a discharging position, thereby taking care of the sudden accumulation of water.

Figure 3 is an end-sectional view of trap. J—End of the trunnion through which water is discharged. K & T—caps for stand H. M—Discharge port. N & Q—Side flanges and stuffing box. O—Front view of stand H. P—Intake port in cylinder. R—Intake port in trunnion. S—Stuffing box nut. U—Intake end of trunnion, through which the water passes to receiving vessel. The trunnion or valve spindle is made of best grade of steam metal, and is very rigid and strong. L—The ball valve—the most simple valve in use. This valve is not lifted off the seat against the steam pressure as in other traps, but is forced to roll off the seat automatically, and returned by the same action.

By placing the trap slightly above the water line it will return the water to the boilers.

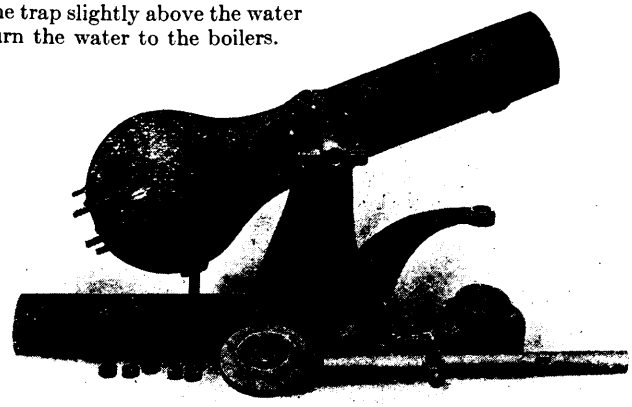

FIG. 1.

By the construction of this trap the ball valve is moved entirely off its seat when the trap swings on the trunnion into the dumping or discharging position, thus allowing all mud, scale, or any foreign matter which may be passing through with the water, to be blown through the large discharge opening, and in this way cleans the seat to receive the ball, as the trap returns to its filling position.

Each time this operation is performed the ball valve changes its position and returns to its seat at a different point on its circumference; thus it is apparent that it cannot become flat, cut or grooved, but retains its perfectly spherical form. The ball must return to its seat when the trap returns to its filling position, owing to the special construction of the chamber in which it is confined. It cannot go to any other place. The ball valve can be easily taken out by removing flange N (see Fig. 3). This type of discharge valve eliminates the trouble of packing valve stems, and does not leak.

These traps are tested to 300 pounds steam pressure, and are guaranteed to work successfully under any pressure from 100 to 250 pounds, and do not require special construction for different pressures.

The two stuffing boxes on side flanges N and Q (see Fig. 3) are the only parts which require packing, and to do this takes very little time.

This trap is governed by the laws of gravity. It has no pins to wear out, no float to leak, sink or collapse, no small levers to become disarranged or broken, no valve discs or seats to cut out and leak; but it has a hardened bronze ball for a discharge valve, resting on a counter-sunk seat in the trunnion, and makes an absolutely tight discharge arrangement. Another good feature—one can see it work, as it has to move to discharge the water.

One of the greatest points of superiority in it is the changeable counterweight in cylinder. When the trap dumps, this weight moves to a position near the axis, thereby changing the center of gravity and causing the trap to discharge a greater quantity of water.

These traps are made in the following sizes:—¾ inch, 1 inch, 1¼ inch, 1½ inch, 2 inch. Prices and further information furnished upon application as above.

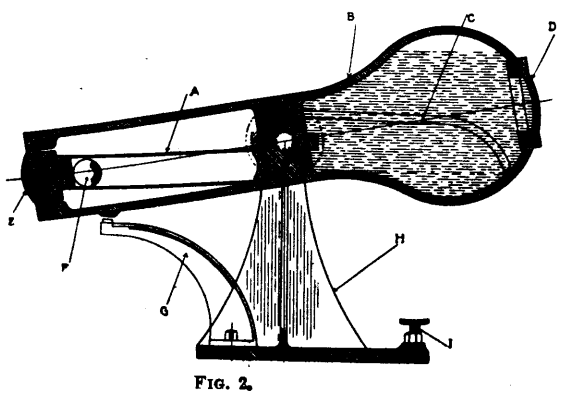

FIG. 2.

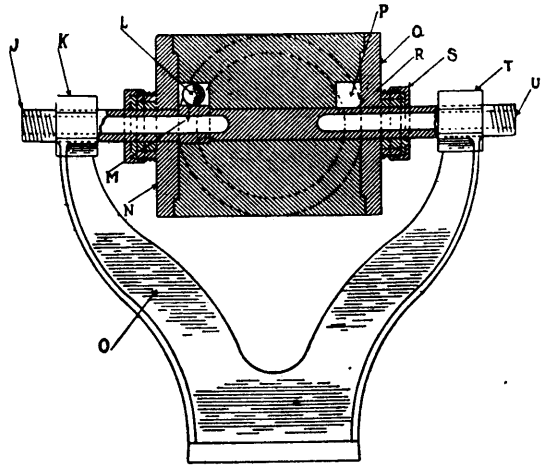

FIG. 3.