

## MULTIPLE BASKET STRAINER FOR POWER PLANT OR PUMPING STATION INTAKE LINES.

**S**ELF-CONTAINED water strainers of the removable straining basket type, are now well established as a necessary part of power plant and pumping station equipment for the protection of pumping engines, general service pumps and condensers from solid matter contained in the supply water. This type of strainer has an advantage over foot-valve screen boxes and gratings, in that it can be installed in any part of the supply main or in direct connection with pumping and condensing units for easy accessibility. The effective straining area of the baskets can be made to any desired size, usually two to six times greater than the area of the pipe line, and each basket can be individually removed for cleaning without interrupting the flow of water through the remaining baskets.

The strainer illustrated is of this type, and is the standard design of strainer built by the Lagonda Manufacturing Co., of Springfield, Ohio, with the exception of an improvement in design for automatic raising and lowering of the individual baskets for cleaning in place of the hand wheel and screw stem method. The hand wheel and screw stem design for raising the basket is thoroughly satisfactory, but for large sizes of strainers, where

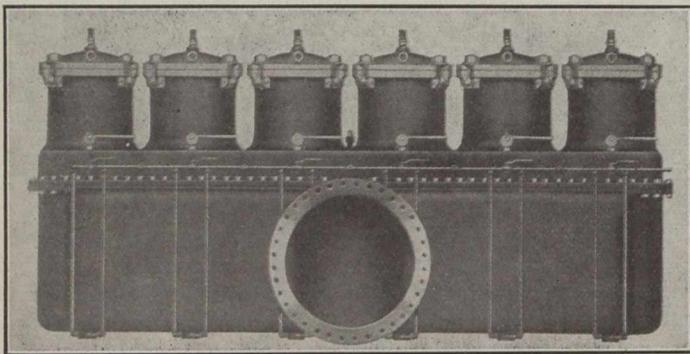


Fig. 1.—A 42-inch, 6-basket, Hydraulically or Compressed Air-operated Strainer, Showing Control Valves, Piping and Cam Lever Locking Device.

the baskets are large and heavy and the travel long, the manual operation is relatively slow and more or less laborious. In this new design the baskets are raised and lowered by air or water pressure, and the operation is almost instantaneous without exertion on the part of the operator.

Fig. 1 shows a complete hydraulic or air-operated strainer of the six-basket type. Each basket is an independent unit, with cleaning chamber valve and air or water control, so that each can be independently raised, removed and cleaned without interference with the operation of the remaining baskets.

Fig. 2 is a section of the strainer through one basket, showing the construction and operation of the baskets and raising mechanism. The straining basket is rigidly supported on a circular base or disc which also serves as a valve seat when the basket is raised. Attached to the disc is a cylinder of small diameter, the whole moving freely up and down on a piston and piston rod, rigidly connected to the strainer body. The piston rod is provided with two conduits, communicating with the upper and lower sides of the piston and connected as shown through a four-way control valve to the pump or compressor supply. The operation of raising or lowering a

basket is then similar to the simple operation of an air brake. Throwing the handle of the four-way valve to one side, pressure is applied to the top side of the piston and the basket is raised to the cleaning chamber. The basket support or lower valve seat engages the sliding valve collar of the strainer, carrying it up with the basket to completely close the cleaning chamber or bonnet. The air or water pressure is sufficient to seal the valve water-tight, but for assurance against possible leakage or chance lowering of the disc while a basket is removed, there is supplied a cam lever locking device on either side of the strainer bonnets, as shown. With the basket raised, the handle of this locking device is raised in a vertical position, then swung around until the projecting support shown in Fig. 2 is swung under the valve disc. The handle is then drawn down into the horizontal position. The cam draws the support tight up against the disc, insuring a tight fit and locking it in place. When the

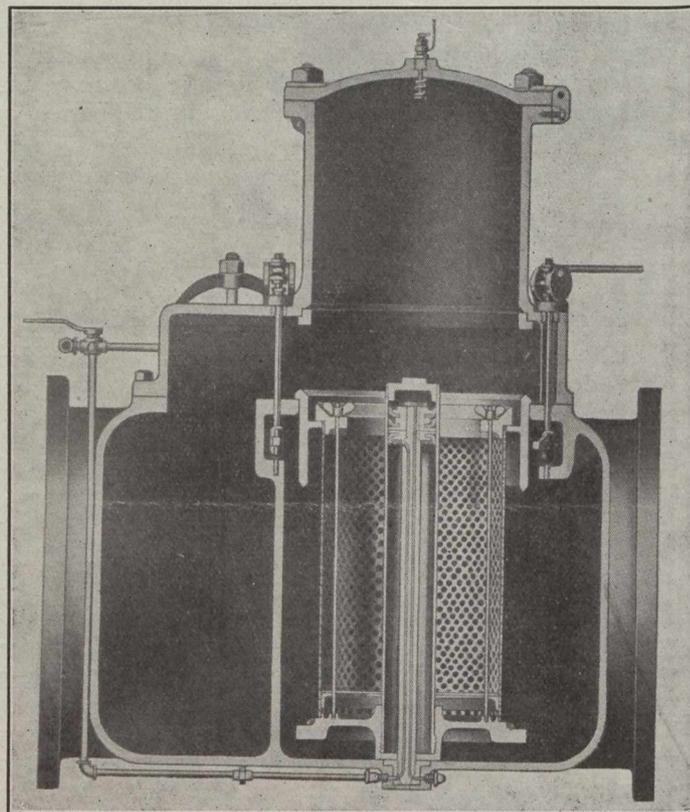


Fig. 2.—Section Through End Basket, Showing Cylinder and Control Valve.

basket is raised the top of the cylinder engages and raises the indicator rod in top of flange cap which shows the basket is in cleaning chamber. As soon as the basket is lowered, the spring pulls the indicator rod down, showing the basket is in straining position. In the flange cap a pet cock is provided for relieving any pressure in the cleaning chamber, so the hinged flange cap can be easily unbolted and opened for the quick removal of the basket. With the basket reinserted, the flange cap bolted down, the basket is lowered into position by releasing the locking device and throwing the handle of the four-way control valve to the opposite side. The control valve is then thrown to the middle position, cutting off pressure from the basket cylinder when in the normal working position.

This design of automatically operated strainers is especially suited for power plants and large pumping stations, where the rapidity and ease with which the baskets can be removed and cleaned is essential.