

13. Steam loop and Holly gravity return system.

14. Feed Water Heaters—Receive exhaust steam from all boiler-room auxiliaries.

15. Boiler Feed Pumps—Steam cylinder, 14 inches by 18 inches; water cylinder, 10 inches by 18 inches. Two horizontal, compound, duplex, outside packed plunger type; steam cylinders, 9 and 16 inches in diameter by 15 inches stroke; water plungers, 7½ inches diameter by 15 inches stroke.

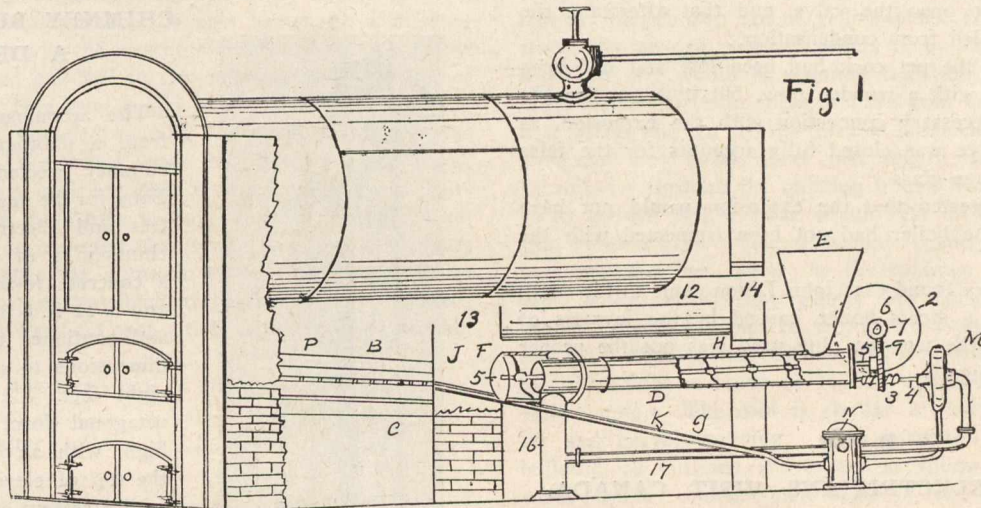
16. Forced Draught Cooling Towers—Effective area of each tower, 460 square feet, each equipped with four 120-inch disc fans; "make-up" water, replacing the amount evaporated, is supplied from city mains.

17 to 22. Information bureaus, general offices, and Biograph Auditorium.



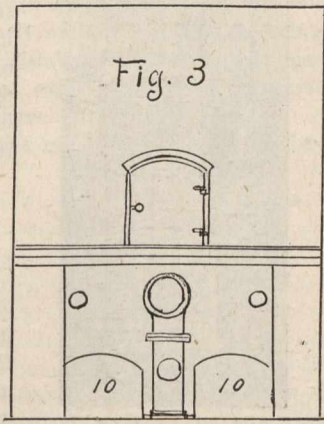
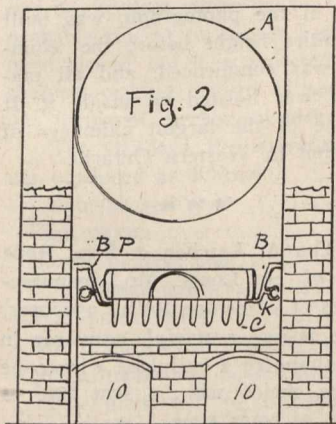
IMPROVEMENTS IN FURNACE FEEDING.

Robert Baker, of Hamilton, Ont., has obtained patents in Canada, Great Britain and the United States for a stoking and fuel-saving device which appears to combine two important advances in furnace feeding and in completeness of combustion of fuel. So far as we have heard, this is the first machine of the kind which works with natural draft, and it is the first which combines with a stoking apparatus a gas generating plant and retort for saving the by-products of coal. The invention is described as follows:



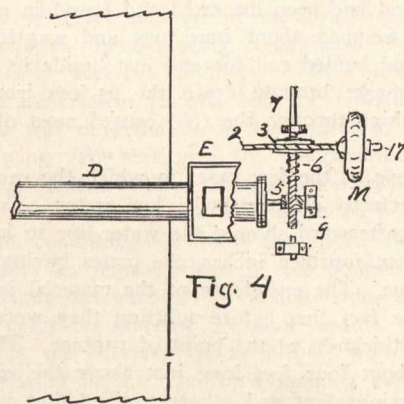
The Baker Stoker and Fuel Saver.

The draft is taken at the rear of the boiler through an opening beneath the curved flue and picks up the latent heat, increasing the volume, which flows through the two arches in the bridge wall to the ash pit, then through the fire which is upon the grates; then over the bridge wall and through the flue to the combustion chamber and on through the tubes distributing the heat to the boiler. The grate bars are of the ordinary type and are set inclined to the bridge wall, and have inclined sides with perforations for the admission of the gases.



The ash pit is provided with a receiver for water of the full area of the pit and is fed automatically at a constant level. The coal is fed into a hopper by means of a bunker and conveyed from thence by a spiral feed device to the generating

chamber in the bridge wall, where it is prepared as live coal for the grates. The gases are conveyed rearwards by means of a fan, and in their course deposit their impurities in liquid form—as is done in the manufacture of illuminating gases—into a receiver; thence forward to the back of the inclined



sides, depositing the gases in opposite directions through the perforations to the fire, where they are consumed.

The engine that drives this appliance has double cylinders, and is set on quarter-crank motion. The draining of the cylinders is trapped with an expansion trap to relieve the condensation. The fan is geared from the shaft of the engine by

means of a large spiral gear wheel running into a smaller one on the shaft of the fan. The shaft engine extends to the spiral coal feeder with a large spiral wheel on the shaft of the coal feeding apparatus, and a small one on the engine shaft. The coal is continually being prepared and conveyed forward on to the grates at full grate area, and at the same time the carbonic acid is deposited into the ash pit. The live coals are conveyed to the full length of the grate area, and the ashes therefrom are deposited on the dead plate. This arrangement keeps the grates perfectly clean, as it makes no clinkers, all impurities having now been deposited. The ashes can be cleared from the front when necessary without disturbing the fire. The fire and ash pit doors are kept closed until the deposits are required to be removed, therefore no cold air can be admitted to the boiler.

This machine is controlled by a damper regulator. When a given pressure is obtained, the dampers readily close, the engine is shut down, and the bye-pass is opened for the gases to flow to the grates by gravitation. When the pressure falls, the dampers readily open and the bye-pass closes and the engine is set in motion. This being a completely automatic machine, no attendance is required through the night, nor any banking of fires. Simply set the dampers to the pressure required to be carried through the night. When the engineer comes in for duty in the morning he sees that the water is all right in the boiler, then he goes to his damper regulator and sets it at the desired pressure to be carried through the day. He then may oil his engine and attend to any other necessary duties. He will then find the steam up and all ready for starting up without any further attention.