

THE AMERICAN STOKER.

THE American stoker shown herewith offers the steam-using world a most thoroughly practical method for the economical use of coal.

Not only is a great saving effected in the actual amount of coal used, but the apparatus provides at the same time a practical and efficient means of smoke prevention. In this connection we show

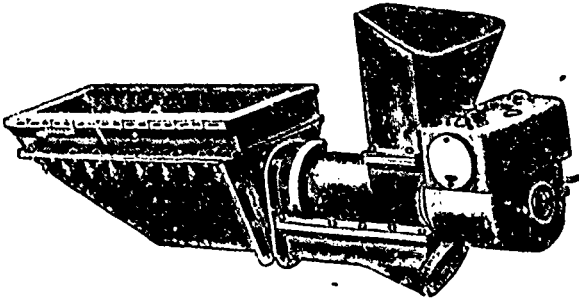


FIG. 1. AMERICAN STOKER READY FOR INSTALLATION.

two views of the Dominion Cotton Company's mills at Montreal, that will be studied with interest by our readers.

Fig. 2 is a reproduction of a photograph taken July 22nd, 1898, at 10 a.m. before the American stoker was put in, while Fig. 3 shows a view of the same chimney taken Sept. 9th following, at the same hour, with the whole of the steam plant of 700 h.p. in operation, the boilers fired by means of the American stoker, using soft coal screenings.

These photographs were taken without the knowledge of any one connected with the cotton mill, and show in a striking manner how effectually the vexatious "smoke nuisance" question may be settled by the use of this type of mechanical stoker.

The principle upon which the American stoker operates practically reduces the coal to gas and coke and insures complete combustion. Immediately beneath the coal hopper, and communicating with it, is the conveyor pipe; this in turn communicating with the coal magazine. A screw conveyor or worm is located in the conveyor pipe and extends the entire length of the magazine. Immediately beneath the conveyor pipe is located the wind box, having an opening beneath the hopper. At this point is connected the piping for the air supply, furnished at low pressure by a volume blower. The other end of the wind box opens into the air space between the magazine and outer casing. The upper edge of the magazine is surrounded by tuyeres, or air blocks, these being provided with openings for the discharge of air, inwardly and outwardly. Each stoker is driven independently by a small steam motor, located immediately in front and beneath the hopper. The motor has a simple reciprocating piston. Its piston rod carries a crosshead, which, by means of suitable connecting links, operates a rocker arm having a pawl me-



FIG. 2. PHOTOGRAPH OF CHIMNEY BEFORE THE AMERICAN STOKER WAS INSTALLED.

chanism, which in turn actuates the ratchet wheel attached to the conveyor shaft. The stoker is thus entirely self-contained and complete in itself, and consequently there is no danger of the driving and feeding mechanism (the only working parts) ever getting out of alignment.

The rate of feeding coal is controlled by the speed of the motor, this being effected by the simple means of throttling the steam in the supply pipe to the motor.

The shields covering the motor effectually protect the mechanism from dirt and dust.

The coal is fed into the hopper, carried by the conveyor into the magazine, which it fills, "overflows" on both sides, and spreads upon the sides of the grates.

The coal is fed slowly and continuously, and, approaching the fire in its upward course, it is slowly roasted and coked, and the gases released from it are taken up by the fresh air entering through the tuyeres, which explodes these gases and delivers the coal as coke on the grates above.

The continuous feeding gives a breathing motion to this coke bed, thus keeping it open and free for the circulation of air. Particular attention is called to the fact that every pound of coal fed into the hoppers passes through this gas-making process, and there is no loss of coal through grates, by reason of the use of dead grates in the furnace, in place of open grate bars.

The non-combustible is taken from the furnace in the shape of vitrified clinker. There is practically no soot, and with these results it is obvious that the combustion must be extraordinarily good.

The finest of slack coal can be used with the American stoker;



FIG. 3.—THE SAME CHIMNEY AFTER THE AMERICAN STOKER WAS INSTALLED.

it can also handle lump coal, as any lump that can be fed into the hoppers will be crushed by the conveyor, there being provided a set of teeth, placed at the mouth of the conveyor, against which the coal is squeezed and broken.

The American Stoker Company is located in the Washington Life Building, New York City. It has Canadian offices at 54 Street Railway Chambers, Montreal.

Since equipping the Dominion Cotton Co.'s mill, four other mills belonging to the same company have been equipped with the American stoker. In addition thereto the American Stoker Company have put their apparatus into a number of other prominent mills in Canada, among them being the British Columbia Sugar Refinery, St. Lawrence Sugar Refinery and one of the plants of the Canadian Pacific Railroad.

A large number of notable plants in the United States are now employing the American stoker. Further particulars with handsomely illustrated catalogue may be obtained by addressing the manufacturers.

The town council of Whitby has given a five years contract to the local electric light company for 27 arc lights at \$1,000 a year. The council refused to entertain the request of some of the citizens to take tenders for the purchase of a civic plant.

For the first time in the history of the English Institution of Electrical Engineers a woman has been invited to read a paper at one of its meetings. Mrs. Ayrton, -the wife of Professor W. E. Ayrton, F. R. S., professor of applied physics in the Central Technical College of the City and Guilds of London Institute—has just read a paper on "The Hissing of the Electric Arc" at the meeting of that body. She has carried out a series of original investigations on the electric arc, and has contributed many papers on the subject.