

FACTORY INSPECTION.*(By F. E. Roberts, Toronto).*

Electric Motors.—A motor should be installed in a dry, well-lighted place, with metal drip pan under, kept free from accumulations of oil and rubbish. Must not be loaded beyond its rated capacity, and must be protected by proper fuses or circuit breakers. Generally the enclosed or cartridge type of fuse is the approved form. Starting boxes, rheostats, fuses and switch should be so located and installed that over-heating or sparks cannot possibly ignite surroundings. All this apparatus should be located in plain sight of the motor, not on another floor, as is sometimes the case.

The usual form of starting device for a direct current motor should have a magnetic release, so that when the current is turned off at the switch, or fails from any cause, the lever springs back to first position, interposing the full resistance of the rheostat between the current and the motor. Otherwise, if human agency is relied on for this necessary detail, the full current is liable to be thrown into motor at rest, with the result of a "burn out" of the coils and a likely fire.

A direct current motor should not be installed in places subject to dust, flyings of light inflammable material, or combustible vapor, without being enclosed, and the enclosure ventilated by fine wire screen.

The induction type of motor, without brushes and in which all working parts are encased, is the proper form for such places and may need no enclosure.

OTHER POINTS.

The usual oil transformer for "stepping down" the supplied current to proper voltage should be installed outside the building. A controlling switch for all motors and line fuses should be located at a point as near as possible to where current enters building, and an especial point made of turning off current when plant is not in operation.

Fuses, standard otherwise, which allow of an excessive current above the capacity of the motor, open link fuses "temporary" or otherwise which, in blowing, scatter incandescent metal about, bits of wire to take the place of proper fuses, and which are no fuses at all and may allow a dangerous current to pass, are all causes of fire, instead of safeguards. Cartridge fuses indeed are not so infallible with regard to dropping ignited material as to warrant a collection of inflammables underneath. The surroundings of the motor and all apparatus connected with it should be kept absolutely free from combustible material.

While not absolutely essential, it is highly preferable that wiring to motors be in conduits, said conduits properly grounded to water pipes.

Finally, the installation should be carefully inspected and approved by a competent electrical inspector. This will dispose of the defects mentioned before plant is put in operation, though some of them may creep in afterward.

In spite of defects in installation and care of motors, electric power generally results in a diminution of fire hazard when it does away with the high-pressure boiler. There is no necessity for cutting up the floors and possibly division walls with a lot of belt holes; much belting and shafting are dispensed with. Indeed, individual motors to machines are often seen.

PRODUCER GAS.

The apparatus for the above, which generates an inflammable gas by the contact of a current of air with incandescent coal, has the furnace hazards of a high-pressure steam boiler using coal fuel, but in a less degree. It introduces, however, the hazard of a gas manufacturing machine. Outside of the usual precautions as to heat radiation, the others adopted are intended to minimize any danger of escape of gas, that air in any considerable quantity shall not be admitted when charging with fuel, and that no ignition of gas inside or outside of the apparatus shall take place. Smoke and vent flue should not enter a chimney, or be carried through floors, partitions or roofs and should end at least 10 feet from wall, if impracticable to carry above roof. Room should be well ventilated and lighting incandescent electric.

It is advisable to instal the apparatus in a separate, one story building, detached or cut off from the factory by fire door, or in a fire resistive apartment, communication by fire door. In practice, the hazard of a gas producer is generally considered the same as a high-pressure steam boiler. A gas engine is necessarily used in connection with it.

GASOLINE ENGINE.

The principal safeguards applying to the use of a gasoline engine are that the supply tank shall be outside, underground, that all piping be arranged to drain back to the tank, and that no storage of gasoline is allowed, except that in the tank. Other points may be noted as follows: Electric ignition only—in fact, it is now universal, the dangerous "hot tube" method being a thing of the past. Floor of engine room to be cement, or if wooden floor, under the engine and 24 inches outside covered with metal. Exhaust pots or mufflers (which get very hot) should not be within one foot of wood or other combustible material, and it is advisable to have an insulating covering. Exhaust pipe—also liable to a high degree of heat—should be extended to outside of building, and where passing through wood be rigidly secured in place and have a 6-inch clearance from wood. Engine should not be installed in any place subject to combustible dust, or flyings, and while a fire resistive enclosure is desirable, one that is not better than none at all, in many cases. Room to be well ventilated, kept clean, free from open flame or heat (as of a stove). Lighting should be incandescent electric; if otherwise, it calls for extra care as to ventilation and leakage.

The Northern Assurance Company notes the death of possibly the oldest annuitant in the world, a Scotch lady who recently passed away in her 106th year. She was born six years before the battle of Waterloo, and satisfactory proof of age was submitted to the company before the purchase of the annuity.

MANAGER WANTED

Large British Insurance Company requires a **MANAGER** for its Casualty department having a thorough knowledge of the business. Apply, stating age and experience, to "Manager," P.O. Box 1502, Montreal.