switch which is practically a duplicate of the car switch. Third, the potential on the controller which opens and cuts off current if the line voltage drops or whenever the slack cable or limit switches open. It is also operated by the car switch as heretofore described and similarly by the stop motion switch. Fourth, the slack cable switch is usually located underneath the drum and is opened mechanically, whenever one of the cables become slack. This opens the potential switch circuit, stopping the machine. Fifth, limit switches in shafts are so placed as to be opened by the car when it exceeds its normal limit of travel. They open potential switch circuit as before described and act as a check on stop motion in case it gets out of adjustment. Sixth, safety switch in car which opens operating line, and hence potential switch, and shuts down elevator. This is for the benefit of the operator if car switch should stick.

Where emergency brake is used safety switch operates this. Seventh, an auxiliary emergency brake is used on large machines which acts when all circuits are opened from car switch, or main current fails. This gives increased mechanical braking at a time when dynamic braking action would fail. Eighth, car safety which is controlled by centrifugal governor and grips rails, stopping car at any predetermined speed.

The best form consists of a ball governor at top of shaft, which grips governor rope at excessive speed. Governor rope is attached to car by a spring plug which pulls out readily. A second rope is fastened to governor rope and then wound round the drum of safety plank. When governor rope is gripped, this rope unwinds safety drum and by means of right and left screws and toggle joints or wedges forces jaws of safety together until they cramp the rails hard enough to stop the car.

The governor sometimes operates a switch to stop the motor before grips go on. Ninth, an air cushion is sometimes used as a last resort, if everything else fails. Tenth, slow down switches in shaft are often used. They may automatically cut in an auxiliary shunt winding on the motor as the car nears the upper and lower landings, so that limits of travel are approached at slow speed.

Although so many safety devices are required, they are comparatively simple in themselves and positive in operation. The general cause of accidents is the abuse of or neglect to care for them. Of course, you all know that trouble and accidents have occurred on all makes, it may be worth while to discuss them briefly and the means of prevention.

In the first place there are a great many contacts about the controller of an electric elevator, and it is essential that they be kept clean and in proper adjustment. Contact pieces that have to carry heavy current should have ample bearing