of "plugging-in" for connection to portable telephone. Fig. 3 shows the parts of the Lima jack box grouped in the order they are assembled. It will be noticed that the spring-jack holder is completely insulated from the outside casing. The spring jacks are made especially heavy, and are mounted on a fibre block. The conections pass through mica bushings, and are soldered to the weather-proof wire on the back of the spring-jack holder. As a still further precaution the jack plug is equipped with a fuse which will blow if a

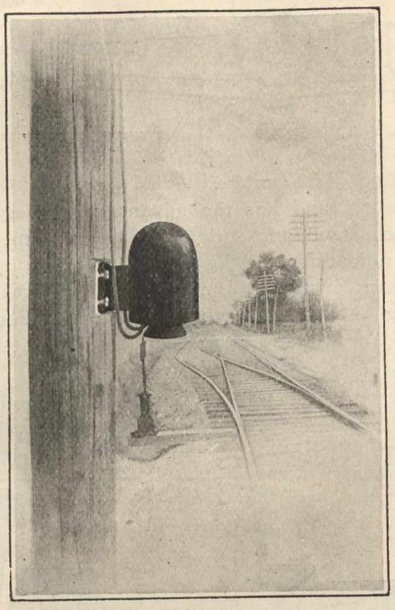

Fig. 1.—Lima Jack Box ready for use.

high voltage were to get through, thus protecting the conductor and his telephone from accident. The plugs have long handles, and are so constructed as to leave no metal parts exposed or uninsulated in the jack box.

There is absolutely no chance of a short circuit or ground. The lock washer shown at the bottom of Fig. 3 securely holds the spring-jack holder in the casing, and cannot be removed without special tools. This prevents the possibility of irresponsible persons tampering with the inside of the box.

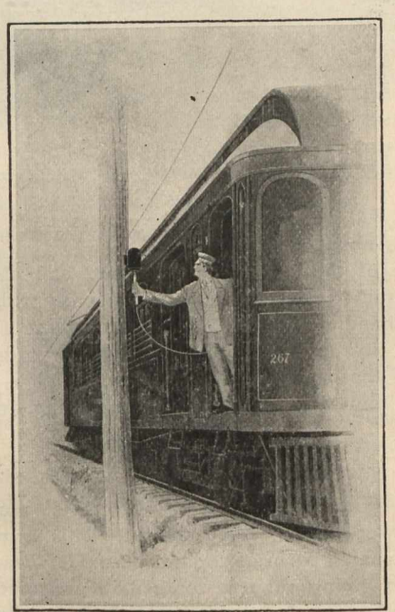

Fig. 2.—Conductor "Plugging In."

Figs. 4 and 5 show a cross-section of the Lima jack box and the way the parts look when assembled. Fig. 4 shows the plug engaged and ready for conversation, the metal ball being displaced. Fig. 5 shows the plug being withdrawn and the manner in which the ball drops back into the opening and closes it perfectly against the entrance of dust, moisture and insects. The cone-shaped mouth of the plug opening guides the plug instantly to its position. This cone-shaped mouth in conjunction with the outer cast-iron shell of the receptacle forms a double petticoat, which effectually shuts off rain, sleet and snow.

The Lima jack box has been in constant use on the lines of the Fort Wayne, Van Wert and Lima Railway Company

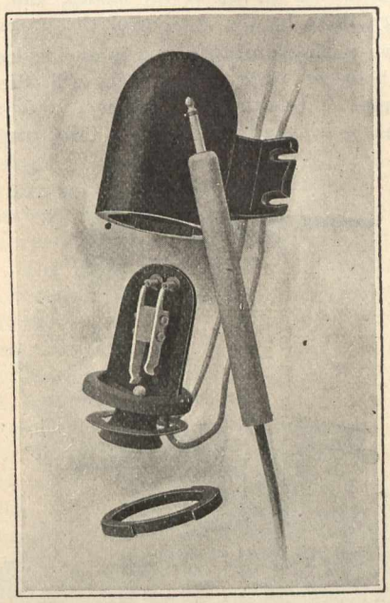

Fig. 3.—Parts of Lima Jack Box.

for over a year and a half. One is installed every half mile, so that the crews do not have to go more than a quarter of a mile at any time to obtain instant communication with the dispatcher's office. The boxes are also installed throughout the lines of the Muncie and Portland Traction Company and several others.

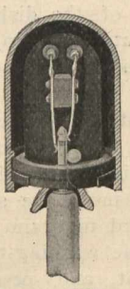

Fig. 4.—Plug Engaged.

Fig. 5.—Plug being withdrawn.

The patents and rights of manufacture of the Lima jack box and plug have recently been purchased by W. N. Matthews & Bro., 203 North Second Street, St. Louis.

THE "VORTEX" DISH-WASHING MACHINE.

The machine illustrated is a remarkable example of the adaptation of means to ends. It is a veritable boon to the modern caterer, and a wonderful labor-saver in all institutions where culinary operations on a large scale are performed. It is a signal triumph of the modern engineer, and destined to be as widely useful as the sewing machine. The "Vortex" machine is the result of fifteen years' experimentation up against chemical and mechanical difficulties, which seemed at the outset almost incapable of solution. The difficulties indicated have all been overcome by the careful selection of metals capable of resisting the destructive influences of oxidation, grinding, galvanic action, etc. In fact, the "Vortex" machine evidences a thorough knowledge of requirements, gained only by long experience, and the result is, that the washing of dishes by this machine is not only a mechanical triumph, but has also converted what was formerly a drudgery into a task that is much more agreeable than many other kinds of domestic manual labor.