

TELEPHONES ON EVERY STREET CORNER.

BY GEORGE J. JONES.

The public pay station has proved one of the most profitable features of the telephone business, some of these installations in the more populous portions of the larger cities having done a business of \$250 per month, which explains their very rapid introduction into every available place. It is hardly possible in the busier portions of a large city to get out of range of one of these public station signs; and while the instruments are generously scattered through the residential portions of the cities, they are not so convenient as the telephone people would like to make them.

It has been argued that were it possible to have these instruments more accessible in the residence portion of the cities, it would probably in a great measure break up the habit resorted to by some persons of making use of the instruments installed in the houses of their neighbors, which is not only an annoyance to the subscribers, but a loss of revenue to the company. With the view of remedying these evils, many suggestions have been made and investigated. The most promising scheme is one which has been tried in the city of Bridgeport, Conn., and is about to be extended to a number of larger cities. This provides for telephones on every street corner.

Views of these novel instruments are given herewith, and it will be seen that they are quite inconspicuous. They resemble the police and fire alarm boxes which are to be seen on the streets of many cities. These stations are all keyless, and upon opening the door, there will be found a standard installation of the gravity type. A directory is found hanging on the door, and the desired connection is brought about in the same manner as is customary with other instruments; the conversation having been finished and the receiver hung up, the door, being also of the gravity type, closes itself.

The boxes containing these equipments are sometimes mounted on pillars, and again merely secured to telegraph and telephone poles or even trees. In some cases the box will jointly occupy the same pillar with a mail box or fire alarm outfit.

Where street privileges for the new telephone boxes have been declined by the municipal authorities, on the ground that there were already too many of these devices on the street, the objection has been met with the proposition to make these stations still more of the nature of public utilities by placing them at the service of the public for all municipal and emergency uses. It is possible to make use of these instruments instead of police and fire calls. An extremely convenient means of calling an ambulance or summoning police help is offered to any one, the company agreeing to transmit all messages of this character without requiring the customary formality of depositing the coin. These instruments are being introduced by Gray Telephone Pay Station, Hartford.

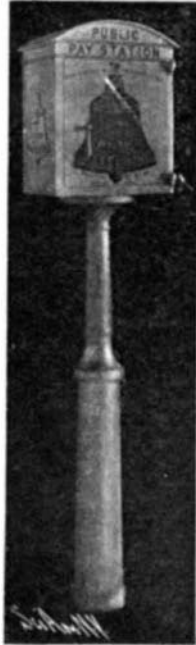
A novel process of electric welding, developed by the

Accumulatorfabrik, Ltd., of Berlin, is based in its working on the heat evolved by an electric arc formed between the working piece and a carbon electrode at the place the weld is to be made. The carbon is fixed to the holder, and is readily shifted to any place in the neighborhood of the weld. An inconvenience with electric welding processes is the current shocks unavoidable in operation, but remediable perhaps successfully by using a relatively small current generator in connection with a storage battery con-

nected in parallel. Even in case a dynamo serving at the same time for other purposes is used, this storage battery will prove efficient in avoiding any heavy fluctuations in pressure. The great amount of heat supplied to the working piece by the electric arc causes this as well as the metal to be welded to melt at the point of contact, thus insuring a rather intimate junc-



ONE OF THE BOXES OPEN.



TELEPHONE POST FOR CITY STREET.



TELEPHONE FOR RURAL DISTRICTS.

ture of the two. The process is continued under a continuous supply of welding material, until the joint or the aperture to be welded is filled in entirely. Owing to the heat being partly carried away by the metal, there is no risk of the weld becoming superheated. The size and intensity of the arc are readily controlled, both being reduced gradually after the weld is completed, so that the material is allowed to cool down slowly, avoiding any stress. It is claimed for this process of electric welding that it affords a cheap and simple means of causing any flaws and other defects of castings, as well as cracks, to disappear. In connection with large heavy castings it affords the possibility rapidly and cheaply to repair smaller damages which

otherwise would require the whole piece to be rejected. This is the case, for instance, with broken teeth of toothed wheels. Outside of cast iron, wrought iron and nickel or Siemens-Martin steel can be treated on the above process, applying pieces of the alloy in question. In connection with railway and tramway construction this welding method will, however, be used to especial advantage to connect the rail joints. The outfit used by the Accumulatorenfabrik comprises two cars, one of which contains the storage battery, while in the other there is installed a transformer to reduce to 60 volts the pressure of the direct current derived from the trolley wires.

THE PRIMITIVE OBSERVATORY OF JEYPORE.

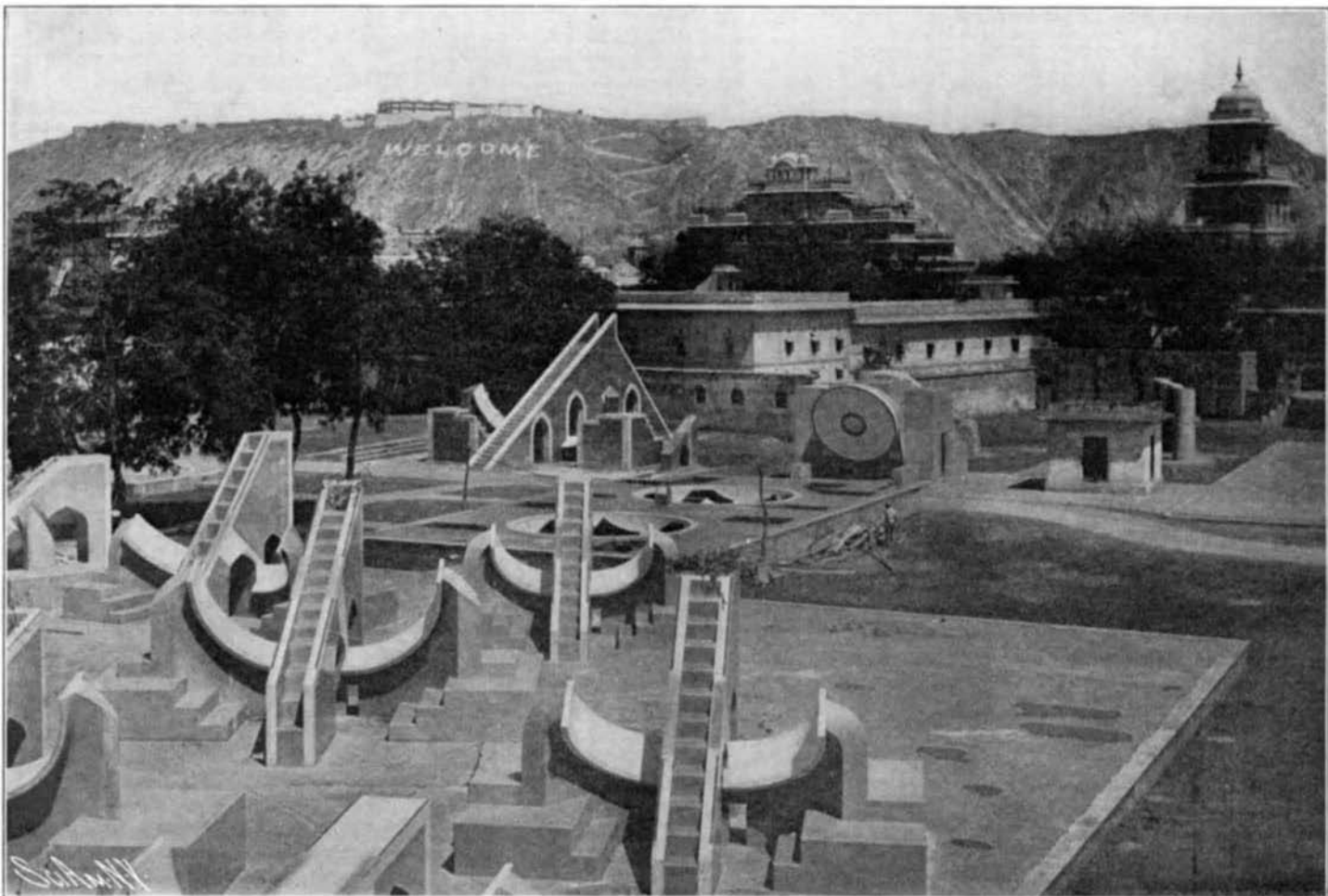
Jeypore is the pleasant, healthy capital of one of the most prosperous independent states of Rajputana, India, and is a very busy and important commercial town, with large banks and other trading establishments. It is a center of native manufactures, especially those of many kinds of jewelry and of colored printed cloths and muslins. The enameled work done here is the best in India, and the cutting and setting of garnets and other stones found in the state is a large branch of industry. The crowded streets and bazars are most lively and picturesque. It is laid out in rectangular blocks, and is divided by cross streets into six equal portions. The main streets are 111 feet wide and are paved, and the city is lighted by gas. The Maharaja's palace occupies the center of the city, which has a population of about 143,000.

In Jeypore is the famous Jautra or Observatory, the largest of the five built by the celebrated royal astronomer, Jey Sing, the founder of Jeypore, who succeeded the Rajas of Amber in 1693. Chosen by Muhammad Shah to reform the calendar, his astronomical observations were formulated in tables which corrected those of De la Hire. He built five observatories—at Delhi, Benares, Muttra, Ujjain, and Jeypore. The observatory at Jeypore is the largest of the five. It is not under cover, but is an open courtyard full of curious and fantastic instruments invented and designed by him. They have been allowed to go out of repair, and many of them are now quite useless, it being impossible even to guess what purpose they served in the wonderfully accurate calculations and observations of their inventor; but the dial, gnomons, quadrants, etc., still remain of great interest to astronomers, and the Observatory at Jeypore is one of the places which is always visited by tourists.

England the Pioneer of the Iron Bridge.

England is considered the pioneer country of the iron bridge, the first one, consisting of a nearly semi-circular cast-iron arch, having been built in 1776-79. In 1786, Thomas Paine, the well-known author, designed and made a model of a segmental arch. This model was set up at Franklin's house in Philadelphia, whence it was taken to the State House, and, eventually, exhibited at the Academy of Sciences, Paris.

Paine had an experimental cast-iron bridge built in England in 1790, and Rowland Burdon, in 1793 to 1796, built the bridge at Wearmouth of 240 feet clear span, after this model, which formed the basis of many cast-iron bridges built thereafter, and became the prototype of the modern steel arch. Paine's device was also the basis of the design of the Market Street Bridge and the first Fairmount Bridge, in Philadelphia, both being wooden arches. The former was completed in 1800, and the latter in 1812.



THE OBSERVATORY OF JEYPORE, INDIA, BUILT BY JEY SING ABOUT 1693.