

arches, and stresses due to unequal distribution of such pressure are allowed for. The bridge consists of three spans, composed of braced girders of ordinary type, with horizontal upper and lower chords, 12 feet 6 inches deep, and divided into square panels. The girders are fixed 20 feet apart. The central span is 500 feet between centres of bearings, with a rise of 90 feet. The curvature of the arched rib is parabolic. The entire bridge, with the exception of the main bearings, weighs approximately 1,500 tons. Each half of the arch was designed to meet the other with a butt joint in the arch rib. The bridge was constructed by the Cleveland Bridge and Engineering Company, of Darlington, to the designs and specifications of Sir Douglas Fox & Partners and Sir Charles Metcalfe, Bart.

The Motor Vehicle Industry.

The commercial motor vehicle industry in Great Britain, as distinct from the motor car industry, has made such rapid strides during the past few years as to render it necessary to hold a special exhibition devoted to this branch. This embraced motor omnibuses, both petrol and steam, baggage waggons, travellers' vans, and so on. The application of petrol motors to agricultural purposes also was a feature. Special interest attached to the efforts that are being made to bring about a reliable and silent transmission gear from the engine to the road wheels; and it would appear that, although electricity as a motive power, pure and simple, for locomotive purposes of this kind is not likely to take the place of other forms, yet its use in an auxiliary sense in connection with these vehicles would seem to bring a solution to the difficulty that has for a long time hampered the heavy vehicle industry. There have been many attempts to produce an efficient petrol electric power transmission, and these have ranged themselves under three heads: (1) Where starting and acceleration has been electrical, but the final drive mechanical; (2) the employment of accumulators, which, through the medium of a dynameter, assists the engine at starting and on grades, and (3) those systems which drive entirely electrically all the time. At the exhibition above referred to there were four such systems, and the fact that all of them are of the third type indicates in which direction attention is being drawn. In the near future I shall take the opportunity of describing these, but in the meantime it may be mentioned that firms of electrical manufacturers are responsible for two of them, viz., the British Thomson-Houston Co. and Messrs. Greenwood & Batley, the former of Rugby, and the latter of Leeds. There were also many good things to be seen at the exhibition in the shape of steam and petrol cars, some of which will be referred to in the future.

Electric Power in London.

The proposals to supply electric power in bulk in London are just now in a state of suspended animation. Owing to the change at the recent election in the constitution of the London County Council, the bill of that body will in all likelihood be abandoned, but it is pretty certain that with the present House of Commons the bills by the two companies will not be allowed to proceed. It will thus be seen what a purely political question this severely engineering matter has become.

The Wireless Telegraph Convention in Berlin.

A Select Committee of the House of Commons is now sitting in London to consider the advisability of ratifying the convention arrived at in Berlin in the summer of 1906. There do not appear to be any reasonable grounds why we should not do so, although the colonies have a perfectly free hand, so far as adhering to the terms of the convention is concerned. The convention and service regulations which have been drawn up relate entirely to ship and shore communication, and to naval signalling, or to ship and ship communication. The latter, as a matter of fact, are not bound to communicate with each other, either by semaphore or flag signals, so that it would have been putting a regulation upon them which has never existed before. The principle of free intercommunication has been accepted by the British delegates, with the proviso that any particular stations may be exempted at the discretion of the Government. This is a useful provision in the case of experiments

and so on, and one which the British delegates insisted upon. There is complete unanimity of opinion amongst the delegates that the terms of the convention should be ratified at the earliest possible moment, so as to allow plenty of time for the details to be drawn up for the convention, to be put into force by the stipulated time, July, 1908.

Electricity in Cotton Mills.

There have been considerable developments in the application of electricity to cotton mills in Lancashire during the past few years. A recent installation was the conversion of the Droylsden Mills, Fairfield, which is the first cotton spinning and weaving mill in Great Britain, to discard, at one stroke, mechanical transmission for the transmission of power by electricity. The mill contains 88,900 spindles and 900 looms, and power is applied to the various processes by means of 24 motors, aggregating over 1,000 B.P. Incidentally, the fact that a separate power-house has been installed, although the mill is within range of the power-house of the Lancashire Electric Power Co., indicates the slow progress being made by the electric power companies of Great Britain.

A PORTABLE CORE OVEN.

Many attempts have been made to design an economical and, at the same time, efficient portable core oven. Most cores are baked in heavy brick structures which take up an unduly large amount of space, and which cannot be moved or shifted as development in the department requires more space or a change in the general arrangement of the plant.

Several types of ovens have been put on the market, which are equipped with swinging doors. The objection to

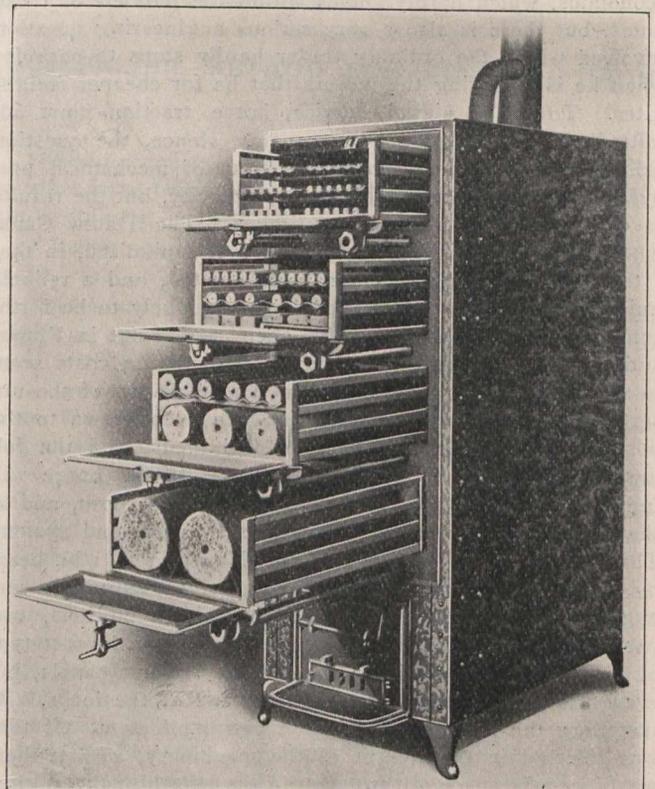


Fig. 1.

all ovens of this type is that there is a large amount of waste space, due to the difference between the area of the quadrant and the area of a square having sides equal to the radius of the quadrant. One objection to the quadrant or semi-circle type of oven is that it is not suitable for drying long cores such as are made on core machines, for the clearance which must be left along the curved edge of the shelf still further reduces the area that can be covered with core plates. The objection to all ovens of the stationary shelf type is that the core plates have to be put into and taken out of the oven through openings, which interfere with the