AN ENGLISH ELECTRICALLY OPERATED EVAPORATIVE CONDENSER PLANT.

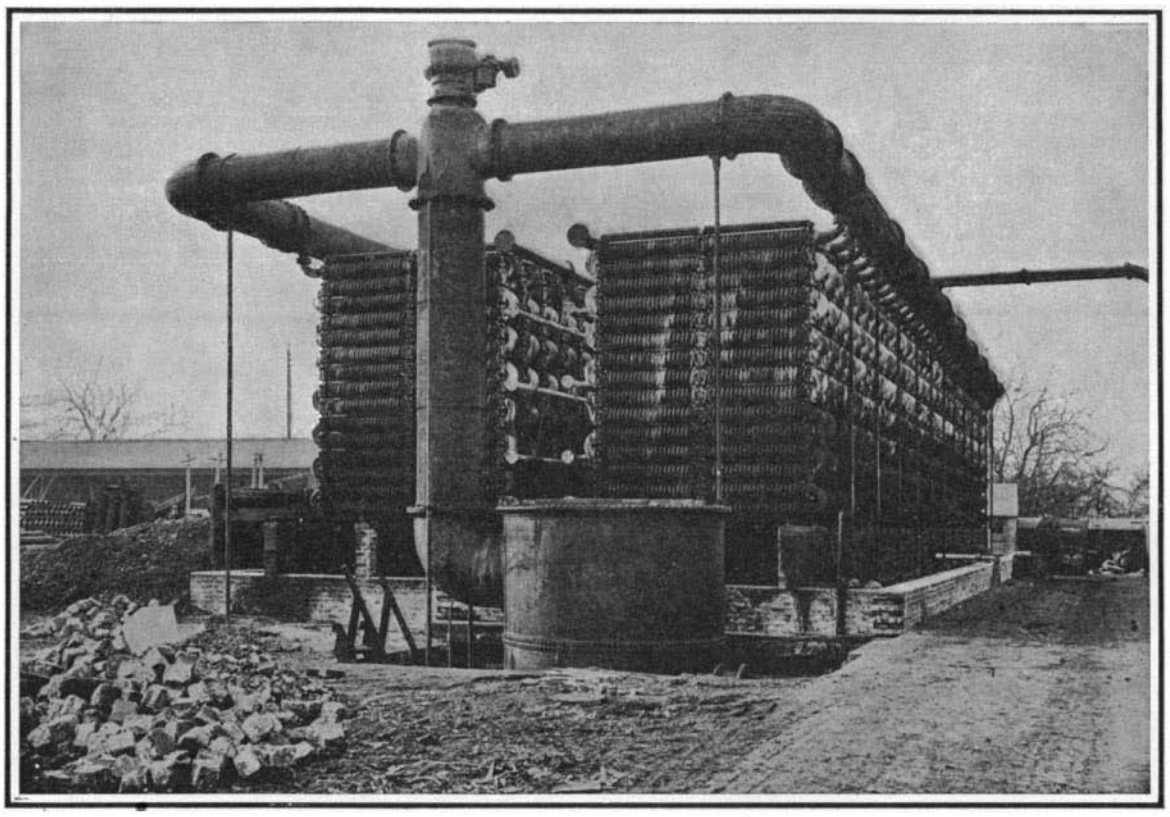
BY FRANK C. PERKINS.

The accompanying illustration shows the construction of an English evaporative condenser constructed to do for the atmospheric condenser what the Contrafio does for the ordinary wet-surface condenser, utilizing compartmental drainage. This plant was installed to deal with 60,000 pounds of exhaust steam per hour and to maintain a vacuum of 25 inches under severe conditions, there being no available water except from the city main.

It will be noted from the illustration that the condenser is formed of two sections of pipes supported by a base of brick and concrete, forming an enormous tank. Each of the two groups or sections is divided into smaller sections, collectors being placed at the end of the coils for separately draining them in such a way as to separate the water from the vapor. The water of condensation then flows into a seal box, and an electric motor-driven pump carries a larger part of it away directly to the hot well, while still at a high temperature.

Sectional drainage is regulated to suit the load on the condenser, in order to obtain at the same time both a high vacuum and a hot feed. Care was taken in the design of the installation to prevent all the water of condensation from being drained from the pipe, for in order to obtain efficient condensation of steam, the effervescent action is necessary. Valves are arranged so as to provide the adjustment of the sectional drainage to synchronize with the load and to secure a hot feed on light load as well as on peak load.

A slow-speed electric motor is utilized for driving each of the two sets of three-cylinder air pumps. In the same pump room are located two direct-connected electric-motor-driven centrifugal pumps for circulating the water over the condenser pipe.



A HUGE EVAPORATIVE CONDENSER.

A NEW ELECTRIC TRAVELING SCALE CRANE.

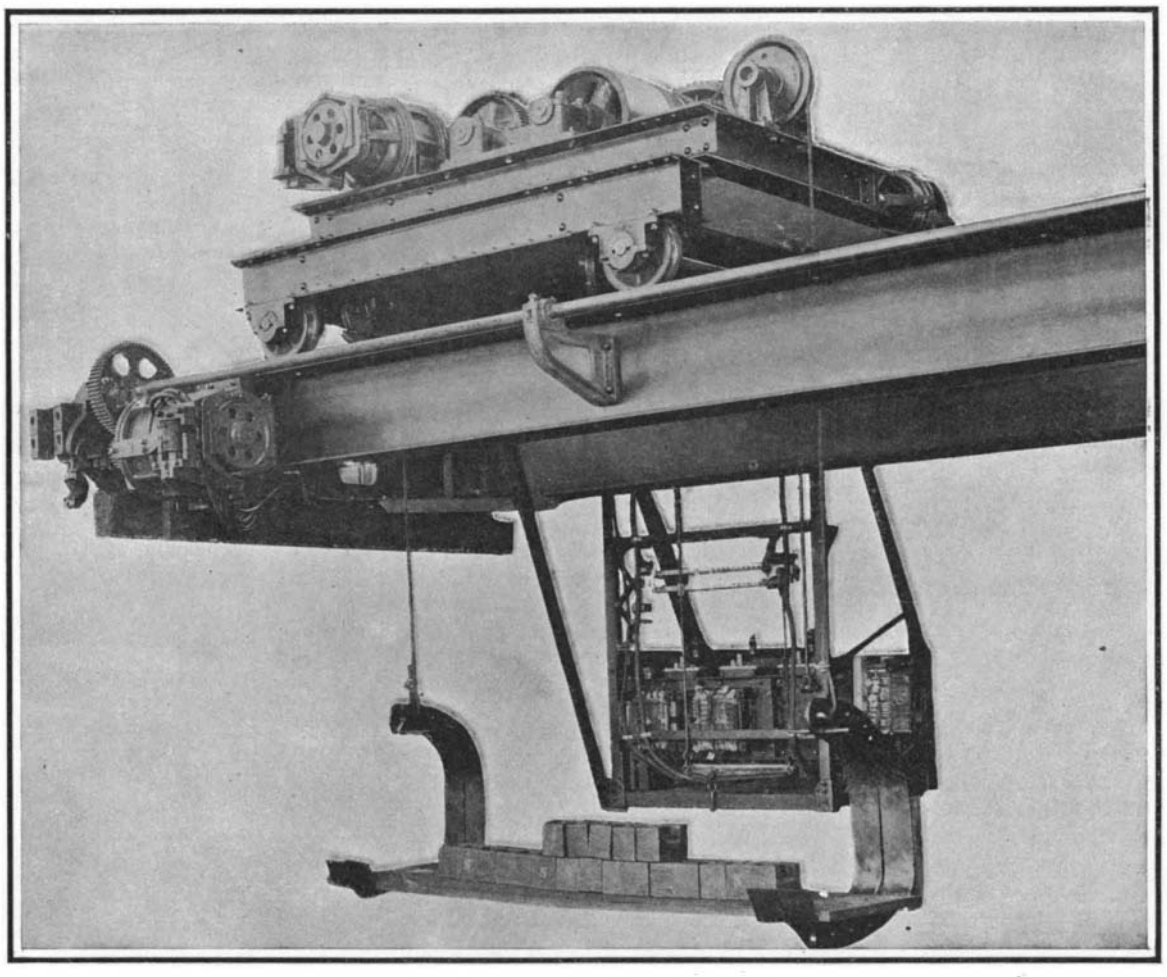
BY WALTER BAILEY.

The accompanying illustration shows the construction and method of operation of a three-motor electric traveling scale crane, all movements of which are accomplished by electric power. The scales are supported on a trolley truck frame and carry the hoisting mechanism on an independent steel framework, while the scale beams are in the cage suspended from the trolley, and readings are taken and recorded by the operator.

It is of interest to note that the crane is provided with three beams, two scale beams with several recording poises and one tare beam, permitting the scale weights of several different items of material to be easily and accurately determined. A movement of the hand lever transfers the load from the knife edges of the scale to the trolley truck frame when desired, and the operation thereafter is the same as with an ordinary trolley.

It will be seen that an open side platform is furnished for carrying long pieces such as bars and rods, this platform being designed to suit the material to be handled. The crane is adapted for weighing material when loading, checking invoiced weights, and for loading for shipment as well as for inventory.

The illustration shows a three-motor electric traveling scale crane fitted with alternating-current 3-phase 60-cycle 220-volt motor. This construction is used in warehouses for handling freight, structural material, or any other class of goods of which the weight is desired. The scale beams are so arranged that record of the weight of each piece can be made automatically. The scale mechanism can be thrown out of service and the carrying beam cast off, so that the crane may be used as a standard traveling crane for general work.



A NEW ELECTRIC TRAVELING SCALE CRANE.

"Speaking" Dynamos and Transformers.

The human voice is perfectly transmitted a considerable distance by undulatory or induction currents, produced by periodic alterations in the magnetism of a magnet. Prof. W. Peukert, of Brunswick, Germany, has tried to magnetize an iron core by currents of the kind produced when a microphone is spoken into. To this effect he inserted a coil surrounding a closed bundle of soft iron wires in the circuit of a microphone. The sounds pronounced in front of the microphone caused the iron core to vibrate slightly, thereby rendering conversation with perfect distinctness, though so feebly that the ear had to be brought close to the iron core.

It is well known that the permanent magnetism of iron under certain conditions is markedly influenced by feeble, variable magnetizing forces. [illegible] the idea of subjecting the iron simult[illegible] constant magnetizing force. With this obj[illegible] the core was surrounded by a second coil of w[illegible] versed by direct current. The iron core immed[illegible] began to give out intense sounds. In fact, by [illegible] a direct current of proper intensity, speech wa[illegible] loudly reproduced as to [illegible] distinctly audible at a distance of several yards.

In another arrangement a coil and soft iron core were inserted between the poles of an electro magnet. Again a very intense and distinct reproduction of speech was produced. The sound intensity, in this case as well, depended mainly on the excitation of the electro magnet. A reproduction, though of considerably less intensity, is also obtained when using a coil without iron core.

These experiments having shown a considerable permanent magnetization to be the main factor, the substitution of a large steel magnet for the electro magnet was suggested. Accordingly, a horse-shoe magnet, on a wound iron core, was used with excellent effect. Speech was reproduced very distinctly. By properly choosing the shape and dimensions of the various parts it thus was possible to obtain a novel telephone apparatus, remarkable for its simplicity, and free from the disadvantages of vibrating plates or membranes. This telephone comprises a magnetic circuit as perfectly closed as possible, whose ultimate particles partake in the oscillation, insuring—because of the magnitude of the vibrating mass—a considerable sound intensity. These effects can even be increased by using an acoustic funnel, the whole system constituting an extremely simple loud-speaking telephone, free from the upper harmonics that usually spoil the timbre.

Similar experiments with equally satisfactory results were made on different alternating-current transformers. Even a dynamo could be made to talk. The field magnets of the dynamo were excited from a special source of continuous current. The microphone circuit being applied to the brushes, the dynamo repeated with perfect distinctness the words pronounced in front of the microphone. Speech and song were reproduced with equal clearness, a small 500-watt shunt dynamo producing sounds distinctly heard throughout a hall of fair size.

While large-sized machines show the same effect, the sound intensity of the reproduction by no means increases with the size of the machine, the microphone current undergoing no corresponding increase.

It is doubtless an interesting physical phenomenon that the heavy iron masses used in connection with dynamos and transformers should be acted upon to such an extent by feeble microphone currents.

The government commission appointed to regulate the Russian platinum industry has, in conjunction with representatives of that industry, drawn up a scheme for the formation of a compulsory syndicate. In connection with this scheme, the exportation of unrefined platinum is to be prohibited, its production is to be regulated by law, and credit is to be allowed on platinum by the State Treasury until the export trade in that article to foreign countries shall have become more favorable.