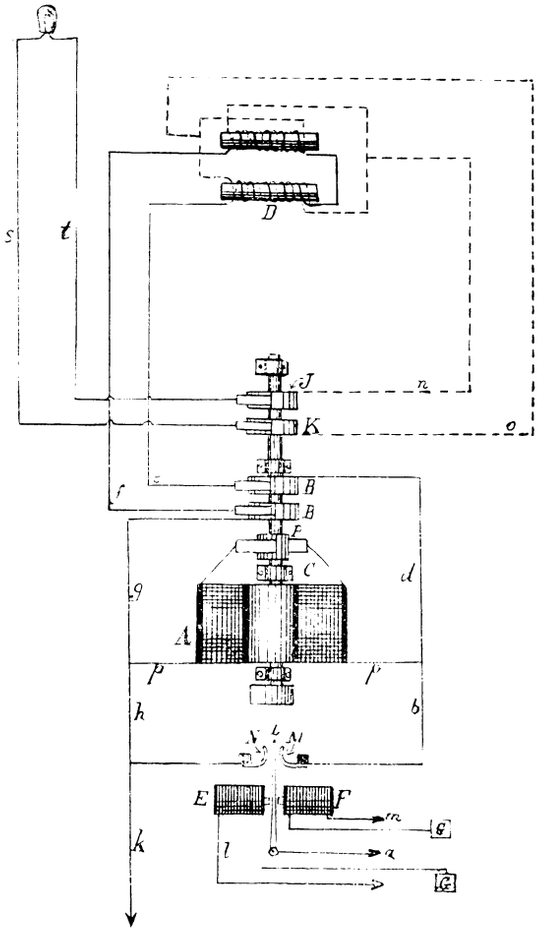
tors of the road express themselves as very well pleased with the successful performance of the motor-cars.

A NEW SYSTEM OF ELECTRICAL DISTRIBUTION. — One of the problems which has claimed the attention of inventors in the past few years has been the conversion of high-tension to low-tension electric currents. The object is to distribute electric energy at a high potential, using comparatively small wires, and at the points of consumption to reduce the potential to that demanded by safety and the requirements of incandescent lighting. A large part of the cost of an incandescent electric plant is in the wires used for distribution; and the size of the wire required to distribute a given amount of energy varies inversely as the potential used. One of the most successful converter systems is that



THE DICKERSON SYSTEM OF ELECTRICAL DISTRIBUTION.

used by the Westinghouse Company, where alternating currents are employed, and the reduction is effected by transformers, — induction-coils working backward. But there are some disadvantages in the use of alternating currents, and many attempts have been made to invent a continuous-current converter, that will do for continuous what the transformer does for alternating currents. Storage-batteries would offer an ideal method of effecting this, but for their cost and depreciation. Several mechanical methods have been tried, among others a motor-generator arrangement, — a combined motor and dynamo, the former supplied from the high-potential circuit, the latter supplying current at a low potential to the local circuit. Other plans have been proposed in which the main circuit is interrupted and advantage is taken of its inductive effect on the secondary circuit. None of these systems, however, are in successful operation on a large scale. Mr. Edward N. Dickerson, jun., of this city, received last week (Jan. 22) a patent on an improvement in his method of converting high-tension into low-tension currents. Feb. 14, 1888, a patent was granted Mr. Dickerson for a method of converting a direct high-tension current into an alternating low-tension current; and by his recent improvement he is able to obtain a continuous low-tension current, which is a considerable advantage if the resulting current is to be used for a motor or for electric plating. The accompanying figures will make it clear how this result is obtained. A high-tension current flows out upon the circuit *a*, and returns to the generator by the circuit *k*. By the switch *L* it passes through the motor *C*. On the shaft of this motor is arranged the double reversing-commutator *BB*, the sections of which are alternately connected with the circuit *d* and with the circuit *g*. The current upon the circuits *ef* is a high-tension reversing current, and operates the converter *D*, which converts the reversing high-tension current into a reversing low-tension current. This induced alternating current passes to the reversing-commutator *JK*, by which the reversing currents are rectified. It is of course essential that the two commutators shall move synchronously, and the commutator *JK* should be so adjusted on the shaft as to allow for the time required by the converter. The switch *EF* may be omitted; but by it it is possible to throw any house into circuit from the central office.

THE WESTINGHOUSE AND UNITED STATES COMPANIES.— An agreement is reported between these companies whereby their interests are united. The United States Company is one of the oldest electrical manufacturing companies, and has a large factory in Newark, N.J. The Westinghouse Company was already the lessee of the Consolidated and Sawyer-Man Electric Companies of New York, and the owner of the Waterhouse Electric Company of Hartford, Conn., and the Tesla Electric Light and Manufacturing Company of Rahway, N.J. The new combination has a manufacturing capacity of over 15,000 lamps a day, and the two companies own and control about 700 patents in every branch of electrical invention.

NOTES AND NEWS.

IT is announced that a post-graduate department in electrical engineering will soon be established by the trustees of Columbia College, this city. A beginning will be made upon an economical scale, and the facilities will be increased in proportion to the patronage, which it is believed will increase rapidly, as New York is a city in or near which all or nearly all of the many applications of electrical science may be studied in practical operation. The course will be open to graduates of all scientific schools.

— An electrical exhibition will be held in the Chicago Exposition Building, in connection with the National Electric Light Association Convention on Feb. 19, 20, and 21. Many exhibiters have already secured space, the electric railway companies being especially forehanded in that respect. The exhibition, though not intended to be of long duration, promises to be interesting and important.

— The *Journal of the Society of Arts* reports the discovery of a new textile on the shores of the Caspian. This plant, called "kanaff" by the natives, grows in the summer, and attains a height of ten feet, with a diameter varying from two to three centimetres. By careful cultivation and technical manipulation, M. O. Blakenbourg, a chemist and engineer, who has made a special study of kanaff, has obtained an admirable textile matter. It is soft, elastic, and silky, gives a thread which is very tough, and can be chemically bleached without losing its value. The stuffs manufactured out of kanaff, and then bleached, can be successfully dyed in every shade of color, and would compete with any of the ordinary furnishing materials now in use. But it is particularly for making sacks, tarpaulin, ropes, etc., that this new textile, from its cheapness and its extraordinary resisting power, might defy all competition. Its specific weight is much less, but its resistance much greater, than those of hemp. Thus, a cord of 8.25 millimetres diameter, woven with the hand out of three threads of kanaff, requires a weight of 180 kilograms to break it. A cord half an inch thick, manufactured at Moscow, did not break till the weight of 625 kilograms was reached. When it is considered that Russia annually consumes more than one hundred and fifty millions of sacks, a third of which are imported, it may be easily seen that the appearance of this new textile on the Russian market is an event of no slight importance.