

Automobile News.

An automobile recently made the trip from Boston to Newport in two hundred and forty-seven minutes. The return was made by another route in less than three hours. The distance was 75 miles.

Automobile affairs are making progress in Spain, and a new automobile club is to be organized at Barcelona; for this purpose a preparatory committee has already assembled and a general meeting will shortly follow. A new automobile transportation company has recently been formed in Spain, under the name of Sociedad Automovil de Burgo de Osma, which intends to establish a service of automobile vehicles for transporting passengers and freight between Logrono, Soria, and Osma.

The International Congress of Automobilmism opened on the 9th of July in the Palais des Congrès, at the Exposition; the remaining sessions were held at the Automobile Club of France, in the Place de la Concorde. The programme before the Congress is divided into five sections: 1. Steam motors, explosion motors, and divers types. 2. Electric motors. 3. Transmission systems, frames and their organs, carriage building. 4. Traction force. 5. Economic questions, international and historic questions.

An automobile congress has been recently held at Padua, at which was decided the itinerary of the race called the "Tour of Italy," which is being organized on the same lines as the long touring race held in England. It will be held in April, 1901, and the distance covered will be 3,100 miles. A road race has been recently held at Padua, over a distance of 130 miles, with the following results: Tricycles: 1. Gasté, 4 h. 52 m. Quadricycles: 1. Bugatte, in 4 h. 44 m. Voiturettes: 1. Padovani, in 8 h. 13 m. Carriages under 880 pounds: 1. Frat, in 4 h. 39 m. Carriages above 880 pounds: 1. Colteletti, in 4 h. 52 min. The road race of 30 miles for motorcycles was won by Maseratti in 1 h. 23 m.

An important series of experiments with automobiles for use in the French army will take place in September at the great autumn maneuvers, near Chartres. At the maneuvers of last year experiments were made in this direction under the supervision of M. Journu, a well-known automobilist; as a result, Major Richard was appointed to select a type of automobile suitable for traction, but as the machine chosen was not satisfactory upon trial, the authorities decided to renew the experiment this year on a more extensive scale, with the assistance of private enterprise. For the military transport, eight machines will be used; of these, four have petroleum motors and four use steam. As in previous years, the service of the general staff will be performed by automobiles steered by the leading amateur conductors. General Jamont will use the machine of M. Brisson, of 12 horse power, and General Delanne that of M. Herault, of the same power; Girardot and Antony will conduct two of the other generals, each with a 24-horse power machine. M. Journu will have general supervision of the tests.

The official report relating to the tests of automobiles made at the Yorkshire Cycle and Motor Show, gives a number of interesting figures. Among the machines tested may be mentioned the steam automobile of J. Coulthard & Company, of Preston. It is a quadricycle, transporting a load of 2 tons, placed on a platform in the rear. The total length is about 14 feet, and width 6 feet; the wheels, in wrought iron, have 2'6 feet diameter in front and 2'7 feet in the rear, the tires being 4 and 5 inches wide respectively. The boiler is of the vertical type, tubular, having 9 square yards of heating surface and heated by petroleum; the safety valve is regulated at 30'8 pounds. The water reservoir has a capacity of 58 gallons and that of petroleum 23 gallons. The vertical engine is triple expansion, with three cylinders, the diameters being 2'8 inches, 4'6 and 6'1 inches, with a stroke of 5'1 inches. The motor is well balanced and of good construction; it makes normally 500 revolutions per minute. The boiler is fed by a pump or an injector at will; the escapement passes into a condenser of the Royle type, and the water of condensation is collected in a reservoir. The transmission from the main shaft to the axles is effected by toothed wheels and Renold chains. The total weight of the vehicle is 5,720 pounds complete. It is provided with three speeds having the ratio of 1,2 and 3.

The series of tests of motorcycles recently made at Vincennes Park is of interest as showing the performance in general and the consumption of petroleum of the latest types. The tests were carried out with care under a competent jury, and the points observed were, first, the regularity of running, necessity of repairs, etc.; second, consumption of gasoline; the speed was not taken into account. Twelve motorcycles entered the competition; five were tricycles, three quadricycles, and four bicycles operated by petroleum motor, this being mounted either in front or underneath the saddle. The latter did not give a remarkable showing, as only one was able to finish; but, however, with good results. In each of the classes, first and second prizes

were given, consisting of gold or silver medals. The following figures are given for the machine taking first prize in each class, and will thus show the performance of the most improved types. 1. Tricycles, constructor, Rochet; motor, De Don, vertical type, 3 inch bore and stroke, 1,800 to 2,000 revolutions per minute; weight of motorcycle, 266 pounds; consumption of gasoline, 5'8 gallons; distance, in each case, 480 miles; mean speed, 23'1 miles per hour. 2. Quadricycles, constructor, Rochet; motor, Aster vertical type, 3-inch bore and 3'4-inch stroke; weight of quadricycle, 400 pounds; consumption of gasoline, 8'4 gallons; mean speed, 20'2 miles per hour. 3. Bicycle, constructor, Werner; motor, Werner vertical type, with 2'1/2 inch bore and 2'3/8 inch stroke; weight of machine, 88 pounds; gasoline consumed, 6'7 gallons; mean speed, 24 miles per hour.

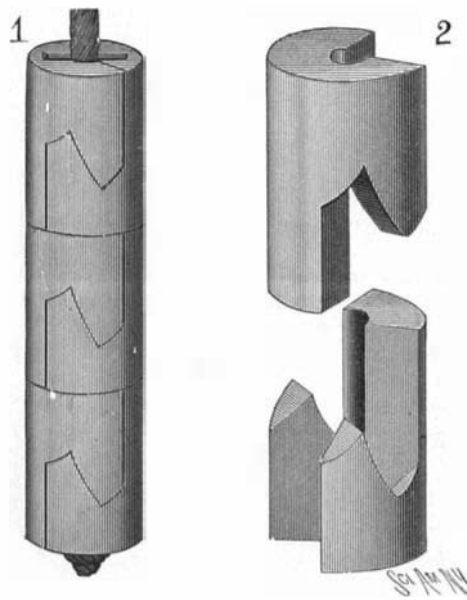
A CONVENIENT FORM OF SASH-WEIGHT.

The invention which forms the subject of the accompanying illustration is a new sash-weight patented by Eugene S. Crull, of Davenport, Iowa, which weight is made in sections so as to facilitate its adjustment on the sash. Fig. 1 is a perspective view of the device. Fig. 2 is a perspective view of the parts separated.

The two parts of which the weight is formed each consist of a body section with an open portion, and a branch, the branches fitting in the open portions of the bodies. Each part has also beveled flanking branches which interlock to sustain one part on the other. The parts have grooves which match to form a passage for the reception of the sash-cord.

It is evident that the number of weights can be increased or decreased at will to regulate the stress on the cord. When the proper number have been applied, the weights are held securely by a pin driven through the cord or a split washer clamping the cord and engaging the uppermost weight.

It is furthermore evident that this weight can be ap-

**NEW SASH-WEIGHT.**

plied to the cord at any point between the ends, and that it is not necessary to string the cord longitudinally through the passage in the weight.

One weight can be placed in position on top of another without disturbing the first weight. Merchants, by means of this invention, are enabled to carry in stock a uniform or standard article which can be used on different sashes. Hence the inconvenience of carrying in stock a large number of sash-weights of different sizes is obviated. The sections may also be used to build up the ordinary weight where the weight is inadequate properly to adjust the weight of sash.

Education in China.

Education of a certain type is very general, but still there are vast numbers of countrymen in China who can neither read nor write. There is a special literary class who alone know the literature of their country, to the study of which they devote their lives. There are boarding schools, day schools, and colleges. Examinations mainly confined to moral philosophy and literature are held in the prefectorial cities of each province twice in three years for the lower degree necessary as a passport to the public service, and of the six or seven thousand candidates who have come forward, not more than sixty can be admitted to the degree of Literary Chancellor. For the higher degrees, other examinations are necessary. There is a "College of Foreign Knowledge" at Peking, where European languages, mathematics, sciences, etc., are taught by European, Japanese, and American professors. There are besides many Christian mission schools, where the English language and lower branches of western sciences are taught. The government also maintains naval and military colleges and torpedo schools at the various arsenals to teach the young Chinese modern methods of warfare.

Electrical Notes.

An Italian electrician is said to have invented an electric cartridge for use as a substitute for dynamite, and other explosives. The composition used is made up of potassium carbonate and ammonium chloride, the proportions varying according to the use. The discharge is affected by the electric spark which produces an electrolytic effect upon the chemicals. The cartridges are said to be perfectly safe until subjected to the current.

The Baker Street (Waterloo) electric underground road, which is now being constructed in London, will probably be prolonged at its two extremities; instead of ending at Baker Street, it will go to Paddington Station, and at the other end will be prolonged from Waterloo to Elephant Place. When the line is completed, it is proposed to transport passengers over the entire length for four cents. To cover the same route by omnibus costs ten cents at present.

The use of electricity as an aid in agricultural pursuits has been tested on a considerable scale in Bavaria. The current is generated near the village of Schaftersheim, a distance of seven miles. The current is generated partly by steam power and partly by water power. The current is to be transmitted at a pressure of 5,000 volts to the surrounding villages, where it will be used for driving agricultural machines of various kinds. Special motors have been devised which can be easily operated by farm hands.

A new system of multiplex telegraphy has been devised by M. E. Mercadier, who has recently described the apparatus before the Société de Physique, of Paris. The transmitter is an electro-diapasm; the receiver is a telephone, and the relay is a differential telephone, which serves at the same time to receive all the signals sent by wave currents of different wave-lengths and to distribute them to the receiver circuits, containing twelve telephones constructed according to his system. The effect of the signals transmitted upon the receivers at the same end is neutralized by a combination of condensers and an artificial line. M. Mercadier gives an account of the practical results obtained by this system, which include the transmission of twenty-four messages at once over the same circuit from Paris to Bordeaux.

A new plan has been suggested by Mr. D. Tommasi for restricting the interception of wireless telegraphy messages. The idea is to use two transmitters of different ranges of action. The transmitter with the larger range is used for sending the message to the station for which it is intended, while the transmitter with the shorter range is employed in confusing the message within that range by an unmeaning series of dots and dashes. The range of a transmitter can fortunately be adjusted by altering the size of the spark gap, and, according to The Electrician, it should not be difficult to restrict the chances of interception to a zone of, say, half a mile. If, in addition, the spherical wave train could, by reflection or otherwise, be converted into a beam of the form of a search-light, the problem would be solved in a way.

Two engineers of Berlin have recently invented an apparatus which transmits to a distance the relief of a figure, either living or inanimate; the apparatus has received the name of "teleplastic." The relief may be received in full size, or may be enlarged or diminished at will, being quite exact. The transmitter consists of a frame containing a great number of metal rods placed side by side and movable back and forth. The receiver is a similar apparatus, in which the rods are moved by a series of electromagnets; when a relief is pressed against the rods of the transmitter a series of contacts is established, which cause the receiver to reproduce the relief by means of its rods, whose movement corresponds exactly to that of the transmitter. It is expected that this apparatus will render service especially in the pursuit of criminals, as it will give an exact reproduction of his features.

The lock gates at Ymuiden, Holland, are being operated by electricity. The rapid motion of the motor is converted into slow steady motion suitable for controlling heavy masses. Each gate is operated by means of a long connecting rod attached at about the middle of the width, the inner end of the rod being connected to a traveling carriage, to which motion is given by four endless chains passing from sets of sheaves. The train sheaves are operated by a train of gearing driven by the electric motor, the speed being reduced by a worm wheel and a pair of worms. The motor is placed in a separate chamber from the rest of the mechanism and is carefully cemented to prevent the access of moisture. The motor shaft passes through a fitted bearing in the wall, and there are three doors in the passage communicating with the chamber containing the operating gearing. The 145-horse power motors each control a gate, says The Engineering Magazine, and it is required that these shall open the gate in one and a half minutes against a difference of level of four inches. The motion being automatic is arrested at each end of the travel. The by-pass gates are also operated electrically, and the whole plant is under the control of a single operator.