

#### A MOTOR "PULLMAN"—LORD ANGLESEY'S NEW MORS.

A singularly imposing car has been seen in London lately, under the pilotage of Mr. Montague Grahame-White, and excellent ideas of its exterior and interior alike are afforded by the accompanying illustrations. The Mors in question has just been sold to the Marquess of Anglesey. It is the only one of its type ever built, and has created quite a sensation wherever it has gone. The interior was completed from designs by Mr. Grahame-White, excellently carried out by Lamplugh et Cie, of Paris. A car of similar design is now being built for the Countess de Carrié, and will be shown at the Paris Salon in December.

Mr. Grahame-White has supplied us with the following details of the Marquess of Anglesey's new acquisition:

This car was specially designed and built to represent the finest work it is possible to embody in the production of the latest automobile carriage. The cost was not taken into consideration at all, but the chassis and carriage work were the outcome of many months' thought and consideration. The idea was to produce a car with all the comforts of a Pullman carriage, now well known on the leading railway systems in England.

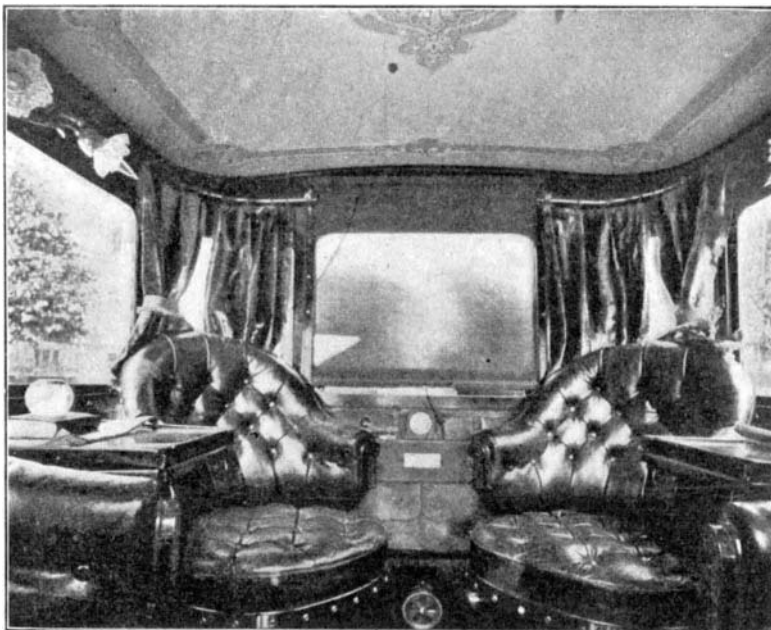
The frame is specially constructed with a wheel base of 10 feet 6 inches and suspended on extra long springs, with equal size wheels, all of which are fitted with 120 mm. Continental tires giving a smoothness of running hitherto unknown. The engine is of the new Mors type with four cylinders, giving between 35 and 40 horse power on the brake, having a four-throw crank and double cam shafts, mechanically operating both induction and exhaust valves.

Magneto ignition is fitted with the usual "make and break" firing. The motor is extremely silent when throttled, and an extra lever is fitted to the top of the steering wheel which regulates the time of firing by altering the position of the cam shaft actuating the tappet rods. The radiator is of the well-known Mercédès type and fan cooled. The firing of each cylinder can be tested independently by releasing the spring contact rods forming the circuit to the sparking plugs, each cylinder being hinged to a rod forming positive conduct from the magneto.

The pump, cam shaft, and magneto gear wheels are made of 1¼ inch fiber with a center strip of brass, which give very silent running. The fan is driven from the magneto shaft by a belt. The main crank shaft bearings are lubricated by a geared lubricator, while the cylinders themselves are splash lubricated by the dip of the connecting rods in the base chamber.



THE 35 H. P. "PULLMAN" MORS JUST ACQUIRED BY THE MARQUESS OF ANGLESEY.



PART OF THE INTERIOR OF THE "PULLMAN" MORS.

The exhaust box is arranged with an additional fitting by which the engine can be still more muffled in traffic and allowed to exhaust comparatively free when in the open country or ascending steep hills.

The body is, as already stated, fitted as a Pullman car, as will be seen by the accompanying photograph; it has large windows at the sides and ends, and at each corner curved panes, all of beveled plate glass. Sliding ventilators are fitted above these, and the front glass is made to drop inside the frame of the body. All the windows are fitted with spring sun blinds. The

inside is fitted with four revolving armchairs, one at each corner, luxuriously upholstered in dark red morocco leather. The whole of the inside woodwork is of polished mahogany. In between these are two side tables forming small cupboards and drawers. The tops of these are polished, while they can be opened up to form one large table covered on the face with green baize.

The front of the car inside (behind the driver's seat) is fitted with a morocco leather holdall, comprising clock, barometer, thermometer, manicure set, note books, looking glass, and an electric telephone to the driver with an indicator marked *right, left, turn, steady, home, quicker, etc.*

There are two electric light sprays, each having two 8 candlepower lights with glass shades, which derive their power from two sets of accumulators giving 16 volts each. These are placed in the well of the car between the driver's seat and the main body. A heating apparatus for the winter (which can be connected to the exhaust at will) is also provided.

The ceiling is decorated in the Louis XV. style, while the car is furnished with royal blue plush curtains. The dashboard is of the hooded Daimler pattern, and is fitted with main sight lubricator, clock, gradometer, voltmeter, and the direction indicator connecting with the inside of the car. On the roof provision is made for carrying a good supply of luggage. The whole of these are lit electrically at night. The car is also fitted with four large size brass Blériot acetylene lamps, one pair giving light laterally, and the other showing direct on to the road. The two top doors of the bonnet are covered with copper sheeting, the fittings throughout are all brass plated; frame and wheels are painted in pale yellow and lined black; the body is dark blue with fine red lines; two side baskets are fitted between the steps and rear mudguards, capable of carrying a large supply of tools.

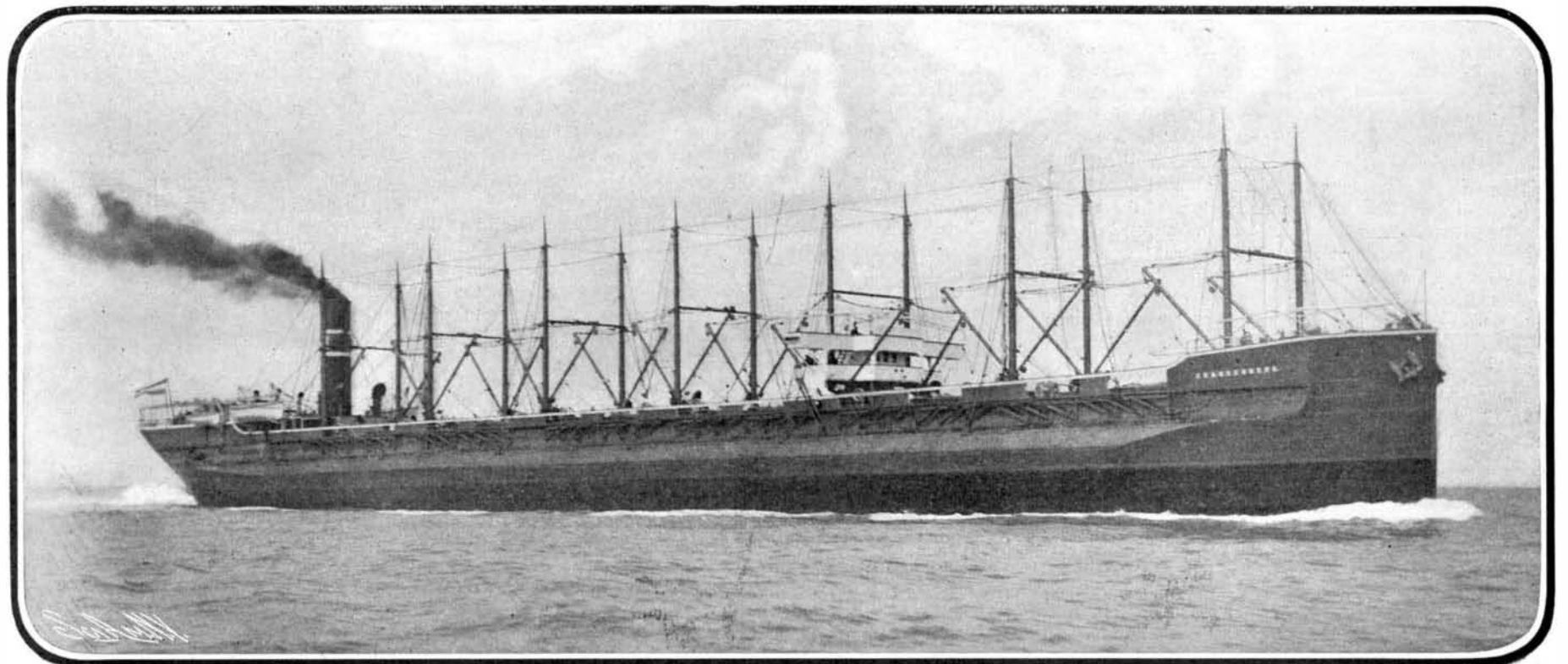
The car is geared to travel at an average speed of twenty-five miles an hour with a full load. These particulars as well as the illustrations are taken from The Car.

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#### THE "GRANGESBERG"—A GIANT ORE-CARRYING STEAMER.

The "Grangesberg" is a recently constructed steamer intended to carry iron ore from the Baltic to Rotterdam, and was built to the order of Messrs. W. H. Muller & Co., of Rotterdam. To unload her in the ordinary way would take a fortnight. With her ingenious equipment of derricks she will be able to unload in 30 hours.



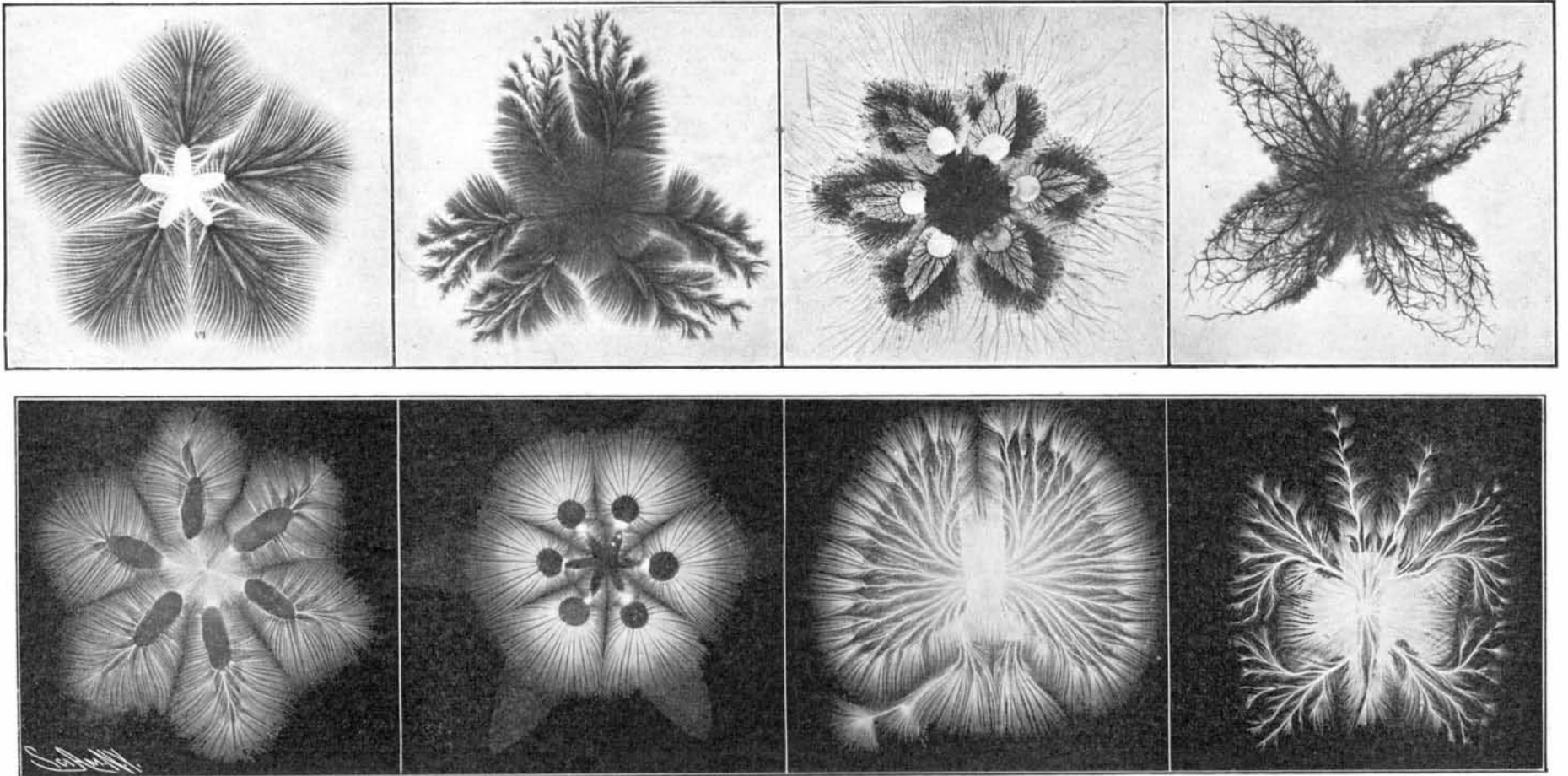
THE NEW ORE-CARRYING STEAMER "GRANGESBERG."

She has 14 masts ranged in two lines on each side of the hatchways. To each of the masts, except the pairs at both ends, are fixed two derricks, and to each mast of the end pair is fixed one derrick. She has thus 24 derricks, and they are so arranged that they can all be worked together. The ship has no 'tween-decks.

exposition of the Société Française de Physique several remarkable photographs produced by electric discharges. The following interesting facts have been procured from Prof. Leduc:

The object is to direct the electric discharge on the sensitive plate, so as to render it regular and symmet-

leaf and the metallic point form the armatures. Only one discharge is produced; the plate is carefully dried with a dry cloth, so that no powder may be left, and is then developed in the usual way. That the result is always unforeseen, makes these experiments quite fascinating. As a gener-



ORNAMENTAL PATTERNS PRODUCED UPON SPECIALLY-TREATED PLATES BY ELECTRICAL DISCHARGES.

Instead, she has 12 holds, each hold being divided lengthwise into two compartments.

There are thus 24 compartments, and each derrick has one twenty-fourth of the ship to unload. Obviously this is a vastly quicker method than the present slow practice, whereby often only a couple of derricks are able to work on a whole cargo—one at the forward hatchway, and one at the aft.

The masts can, if necessary, be used for sails, but the spread of canvas will be very small. She will rely on her engines, which are of 2,200 horse power. Her contract speed is 10 knots an hour, but on being tested over the measured mile she is stated to have traveled at the rate of 10½ knots.

Her dimensions are: Length, 440 feet; beam, 62 feet; depth, 29 feet. When loaded with her cargo of 10,300 tons she draws 22 feet 8 inches.

PHOTOGRAPHY BY ELECTRIC DISCHARGES.

M. Stephan Leduc, professor of biological physics at the Ecole de Médecine of Nantes, presented at a late

rical, while producing designs capable of furnishing motifs for ornamentation which may be indefinitely varied. In order to do this, the sensitive plate must be thus prepared: In the dark room lighted with red light, a dry plate coated with gelatino-bromide of silver is covered with pasteboard, from which previously the symmetrical design desired to be produced by the electric discharge has been cut out; the plate is sprinkled by means of a sieve with an insulating powder, such as fecula, starch, sulphur, or a powdered oxide or metallic salt. Then the pasteboard is taken off; the cut-out design is reproduced on the sensitive surface by the powder, the remainder of this surface remaining clean and smooth.

The result may be varied not only by employing different designs, but by distributing over the sensitive surface pieces of tin, lead, copper, etc., cut variously. The powders give to the lines more or less firmness, according to their fineness and density; the most compact powders give the finest lines, and a great diversity in appearance may be obtained by employing different

ator of electricity, either an induction coil (Ruhmkorff coil) or a static machine may be utilized, and the smallest generators are sufficient.

ELECTRIC BLUE PRINT MACHINERY.

The great value of electricity for blue printing has long been recognized, permitting as it does the production of prints immediately upon completion of the tracings without the inconvenience and delay caused by cloudy or rainy weather.

Manufacturers, architects, and engineers have long appreciated the fact that a good machine for this purpose would be invaluable, because it would enable them to obtain blue prints at any hour of the day or night without loss of time from atmospheric conditions, and without obliging the operator to remain idle during rainy weather.

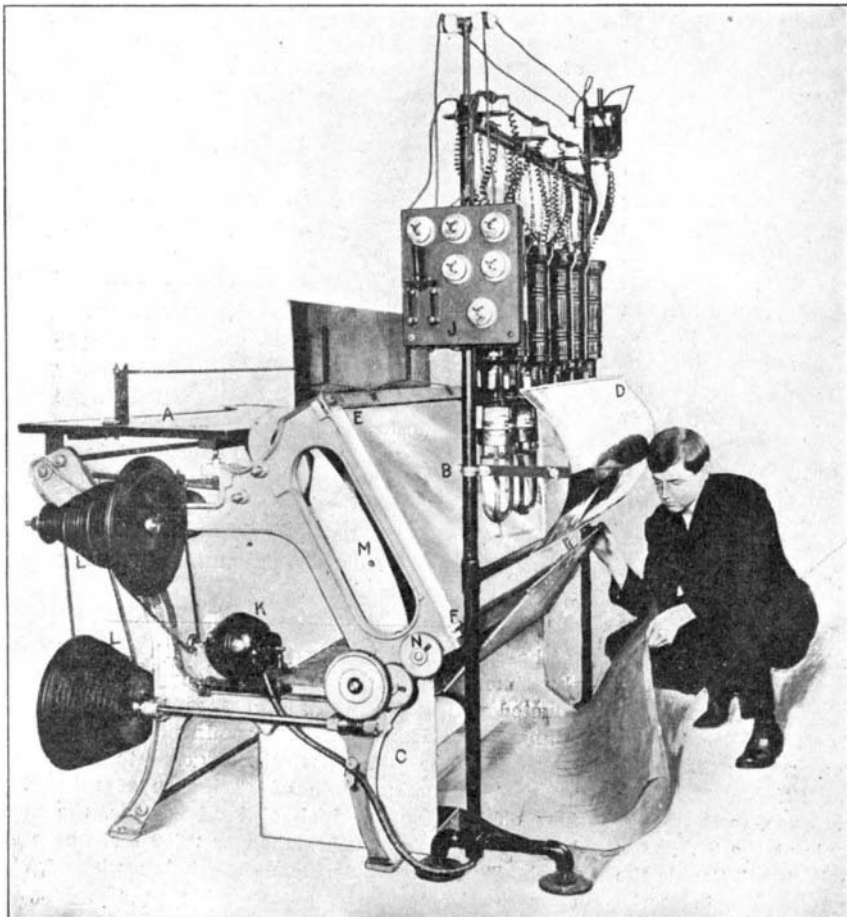
The Franklin electric blue-print machine, manufactured by Williams, Brown & Earle, of Philadelphia, represents the latest and best type of its kind and

powders variously distributed by means of several pasteboard covers.

The plate coated with gelatino-bromide of silver thus prepared is placed with its non-sensitive side on a metallic leaf, put in communication with one of the poles of the generator of electricity.

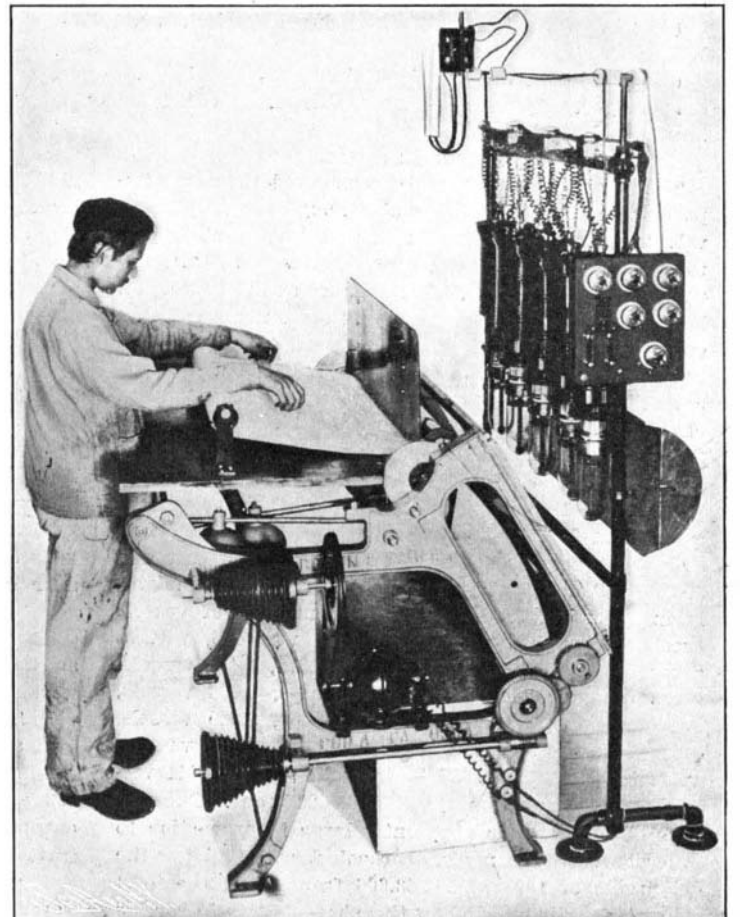
On the sensitive surface, in the center of the symmetrical design formed by the powder, a metallic point is placed, which communicates with the other pole of the generator. The differences of the poles likewise contribute in varying the results.

In the operation thus conducted the plate coated with gelatino-bromide of silver represents the dielectric of a condenser, of which the



Examining the Finished Print.

THE FRANKLIN BLUE-PRINTING MACHINE.



Guiding the Paper.