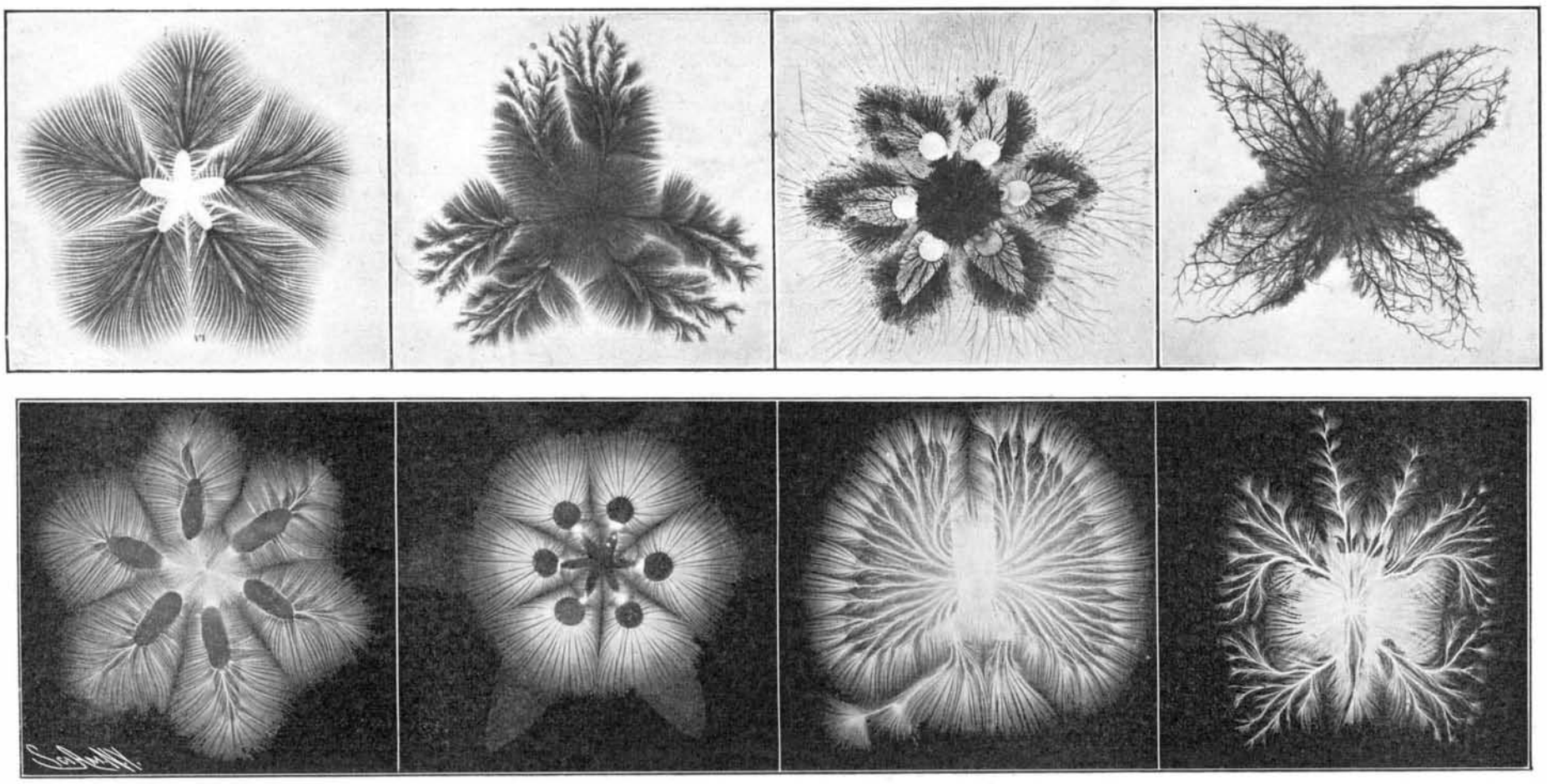
She has 14 masts ranged in two lines on each side of the hatchways. To each of the masts, except the pairs at both ends, are fixed two derricks, and to each mast of the end pair is fixed one derrick. She has thus 24 derricks, and they are so arranged that they can all be worked together. The ship has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



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

PHOTOGRAPHY BY ELECTRIC DISCHARGES.

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

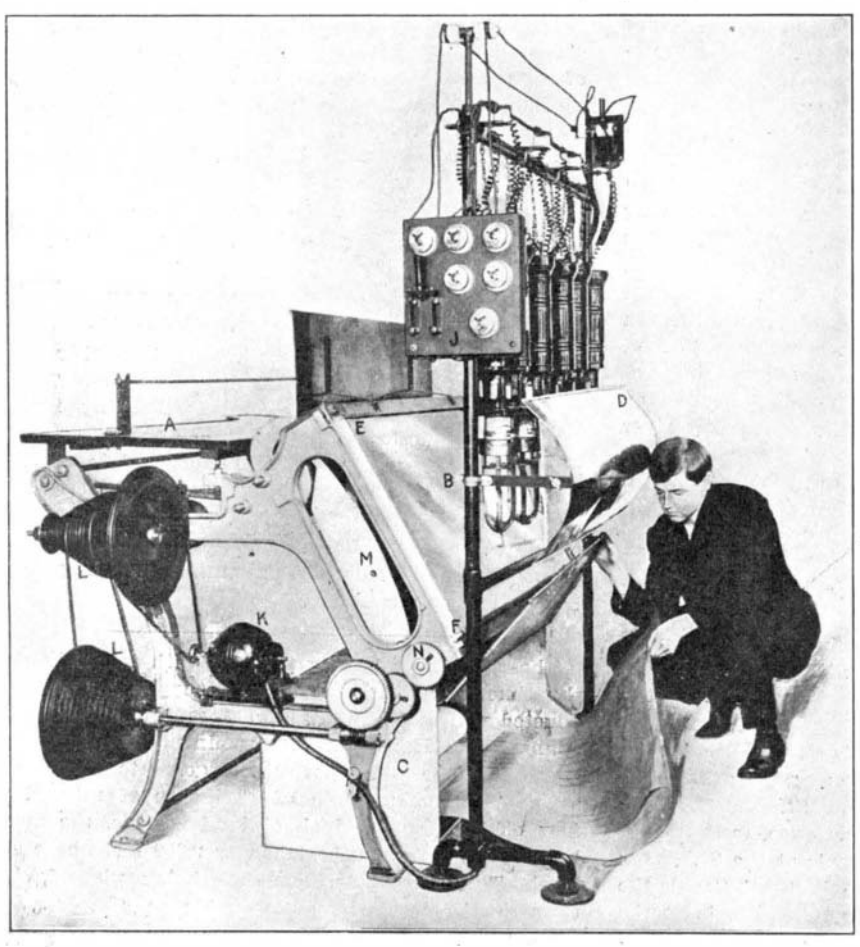
In the operation thus conducted the plate coated with gelatino-bromide of silver represents the dielectric of a condenser, of which the leaf and the metallic point form the armatures. Only one discharge is produced; the plate is carefully dried with a dry cloth, so that no powder may be left, and is then developed in the usual way. That the result is always unforeseen, makes these experiments quite fascinating. As a generator 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.

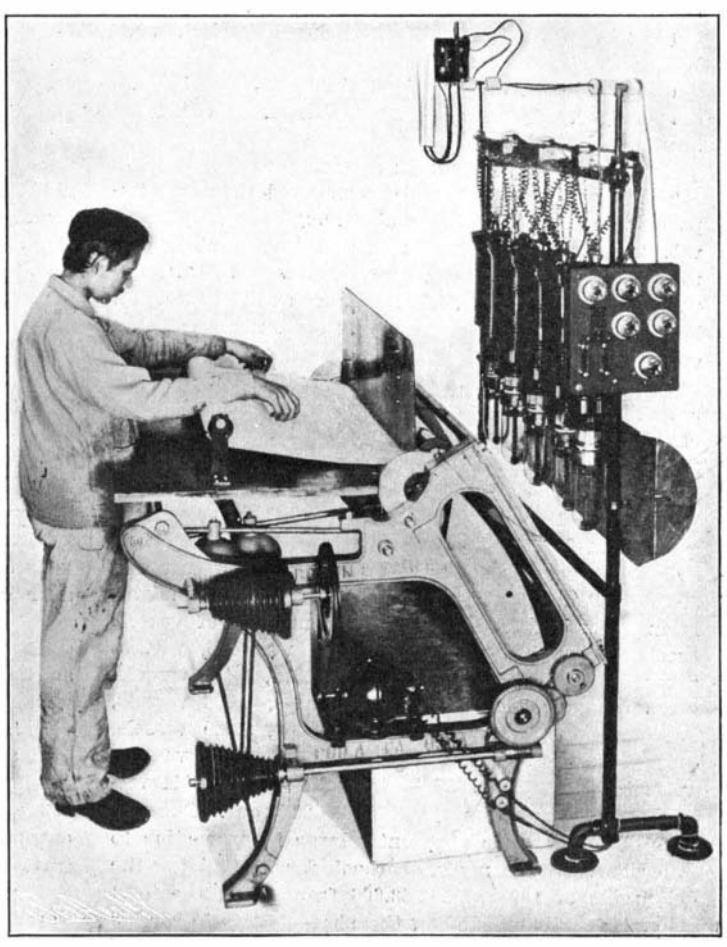
Manufacturers, architects, and engineers have long appreciated the fact that a good machine for this purpose would be invaluable, because it would enable them to obtain blue prints at any hour of the day or night without loss of time from atmospheric conditions, and without obliging the operator to remain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



Examining the Finished Print.

THE FRANKLIN BLUE-PRINTING MACHINE.



Guiding the Paper.