Correspondence.

Invent Something.

To the Editor of the SCIENTIFIC AMERICAN:

There is an article in December 1 number of your paper entitled "Invent Something." So far, so good. But I wish to state that I have invented some things; but, like many others, had not the means to get a patent and put them on the market. A man gets a patent, then shows his invention. The answer is, Yes, it's a good thing. After awhile an improvement is made by some one, and No. 1 is knocked out. Now, if some man, or men, of the Peter Cooper type, would take the patents of all who would desire, and, if the patent proved a success, why pay the inventor a percentage, they could back up the patent in such way that no one would infringe upon it. Many a valuable patent has been lost to the world by the inventor not having the opportunity to get it out. I have tried to present this matter, but in a feeble manner, and trust that you, with a great journal and great opportunity, will give it more than a passing thought. New York has millions of dollars that could be put to no better use than to bring out the inventive genius of our people.

Passaic, N. J. JAS. H. ROSCOE.

Bleaching With Sodium Silicate.

A new departure has recently been made in France in the application of soluble glass to the bleaching of linen. At a recent meeting of the Paris Academy of Science, Mons. G. Geisenheimer described some researches which in brief are as follows: In order to insure the complete bleaching of linen, it is customary to increase the causticity of the lye, and to prolong the time of boiling, with the result that the fabric is injured though its color is improved. The production of yellowish or brownish patches on the linen is usually attributed to impurities in the chemical used, but is chiefly due to the presence in the water of calcium and magnesium salts, which are precipitated on the fabric, and act as mordants, fixing the yellowish coloring matter of the lye. This injurious effect can be prevented by adding to the water a mixture of sodium carbonate and soluble glass. The effect is to precipitate calcium and magnesium silicates in a flocculent form which settles rapidly, does not adhere to the fabric, and becomes granular and pulverulent on boiling. Thus purified, only a very small quantity of caustic alkali is necessary, the greater part of the saponification being effected by means of the less injurious alkali carbonate. A convenient form in which to put up the soluble glass for this purpose is to add from 10 to 20 per cent of anhydrous sodium carbonate to a saturated solution of the soluble glass. The product is easily handled, and remains completely soluble in water. Further, the quantity necessary for a particular water can readily be calculated.

Electric Motors for Cotton Mills.

We learn from the Western Electrician that the Pelzer Manufacturing Company, of Pelzer, S. C., has contracted with the General Electric Company for a three-phase electric transmission plant that will be exceptionally large and interesting. At the generating station, three miles from the cotton mills owned by the company, there will be three slow-speed generators of 750 kilowatts each directly coupled to water wheels. These dynamos will generate current at a potential of 3,300 volts, and the current will be fed directly to the transmission wires at this pressure. The transmission line will consist of eighteen No. 00 wires, this size having been selected in preference to larger wire to reduce the line induction as much as possible under the existing conditions. At one mill will be located a 400 horse power synchronous motor, receiving current directly from the wires. There will be, in addition, more than twenty induction motors in various rooms. Of these, fourteen will be 110 horse power motors, and the others will be of various sizes, from 5 to 75 horse power. In a substation will be located nine 160 kilowatt transformers for the motors and for 1,200 incandescent lights for the mills. Two electrically operated blowers of three horse power each will be used for cooling the transformers.

Orthochromatic Photography.

Dr. H. W. Vogel calls attention to an erroneous idea that prevails regarding orthochromatic plates. He says that professionals as well as amateurs are often of the opinion that the yellow screen is unnecessary in the early morning and late in the afternoon. It seems to be argued that at these hours the atmosphere acts as a "yellow ray filter." This sounds very plausible, but the principal fact is ignored. The air is a ray filter for the direct sunlight, but also a ray reflector for the blue light. The preponderance of the blue rays in the sky diminishes from morning toward noon, and then increases again. As the object of the yellow screen is to reduce the strong action of the blue rays, it follows that the screen is very essential, both in the early morning and in the evening.

Photo Recipes.

In a recent number of the American Journal of Photography we find the following:

Bromide Prints of Different Colors.—Mr. Kajima Seibei gives the following method of producing colored bromide prints: The prints are developed with eikonogen and fixed in a neutral bath without the interposition of an acid bath, and thoroughly washed. They are then treated with the following solution:

Nitrate of lead	½ ounce.
Red prussiate of potash	¾ "
Water	12 ounces.

This converts the image from black into a faint yellow. They are again thoroughly washed, and the yel low image is then toned to different colors with various solutions as follows. For blue:

Perchloride of iron	5 ounces.
Water	6 "

For another blue, called by some a "black blue," the prints are treated with a weak solution of ferrous sulphate. For green:

Neutral chromate of potassium	½ ounce.
Water	12 ounces.

The prints are washed, and are afterward treated as for the first of the two blues mentioned. For brown, or "red sepia:"

Copper chloride	5 drachms.
Water	6 ounces.

The action of this solution is very rapid. For yellow:

Mercuric chloride	90 grammes.
Iodide of potassium	150 "
Water	8 ounces.

The action of this solution is very slow, but the prints darken in drying. By continuing the action for a long time a very pleasing color, that might be described as "light brown," is obtained.

To Change the Color of Blue Prints.—Ferro-prussiate blue prints can be easily transformed to brown by the following process: The blue print, well washed and dried, is plunged in dilute ammonia for two to four minutes, until it is almost colorless; then rinse and immerse it in a bath of tannic acid, where it is left until it is clear and toned. This operation requires about twelve hours. If, at the end of this time, the color is not sufficiently deep, add to the bath several drops of ammonia, and let the print remain in it a minute or two longer, then rinse it in plenty of water. The prints thus obtained are very pretty, and resemble in color sepia drawings. Here are the formulæ for the different baths employed:

SENSITIZING SOLUTION.

Tartrate of iron and potash	15 grammes.
Red prussiate of potash	12 "
Rain water	250 "

SOLUTION TO FADE THE PRINT.

Ammonia	100 grammes.
Rain water	900 "

SOLUTION TO GIVE THE BROWN TINT.

Tannic acid	10 grammes.
Rain water	500 "

To Change Blue Prints to Black they should be placed in water acidulated by nitric acid, then passed into a bath of water 100 parts, carbonate of soda 5 parts. The image turns to an orange color. It is immersed in a bath composed of water 100 parts, gallic acid 5 parts, and finally it is washed in water acidulated by hydrochloric acid.

Black Tones.—To obtain black tones on collodio-chloride papers by means of platinum is given in Das Atelier Photographen. The following is the formula:

The celloiden paper is to be printed very deeply—much deeper than for ordinary gold toning. The washing must be done carefully, and it is better to add a little ammonia or salt to the second washing water, by means of which any chloride of silver remaining in a soluble condition will be dissolved out. From the washing water the prints go direct into the following gold toning bath:

Water	1,000 c. cm.
Acetate of soda	15 grammes.
Chloride of gold	1 gramme.

This bath can be made to keep by Kuehn's method, adding a few drops of hydrochloric acid after use, and neutralizing with soda before using again. The prints go through the ordinary tones in this bath, and the toning is stopped when they have arrived at the usual bluish tone by transmitted light. They are then slightly washed and placed in the following platinum bath:

Chloro-platinite of potassium	1 gramme.
Water	300 c. cm.
Tartaric acid	15 grammes.
Citric acid	5 "

In this bath the prints quickly become a deep velvety blue black, which if left too long becomes a bluish gray. As soon as they show a pure blue black by transmitted light, free from any tinge of violet, the toning must be stopped to preserve the half tones. It is a good plan at first to treat thin slips of celloidin paper in exactly the same way as the prints, and to take these out of the toning bath from time to time—say every half minute—and test them by dropping nitric acid on them from a glass rod. When no change is brought about by the acid, the platinum toning is complete. The prints are then slightly washed, fixed in hypo (1 to 10), and dried on blotting paper. The deep blue black tone changes to pure black in the fixing bath, and the prints have brilliant whites and great depths in the shadows.

Black Stain for Wood.—The intense black color that cabinetmakers produce is obtained by moistening the wood with dilute sulphuric acid, and afterward gently heating. The following mixture answers well:

Sulphuric acid	1 ounce.
Water	8 ounces.

When cold, add sugar in the proportion of 1 ounce to 10 fluid ounces.

A New Developer.—The following was communicated to the French Photographic Society:

Water	1,000 c. cm.
Sulphite	100 grammes.

Dissolve in warm water and add—

Metol	5 grammes.
Hydroquinone	7 "

After solution—

Carbonate of potash	40 grammes.

This developer, which is very active and energetic, has the advantage of keeping without change in a stoppered bottle. For use it is well to dilute it with one-half water; the old bath may be used indefinitely by strengthening it with a little of the new bath. We may add that we have found it useful in using time plates to add a few drops of bromide.

Reducer for Dense Negatives.—

Water	3½ ounces.
Ferrous oxalate	80 grammes.
Sulphite of soda	65 "
Oxalic acid	20 "
Hypo	6½ drachms.

An Intensifier for Negatives Reproducing Lines.—

Water	1,000 parts.
Iodine	14 "
Iodide of potassium	27 "

The negative is allowed to remain in this until entirely yellow. It is thoroughly washed, so that the water running from it is colorless. Afterward the negative is placed in a 1 per cent solution of Schlippe's salt rendered alkaline by a little caustic soda.—Paris Photo.

Liquid Chlorine.

The actual manufacture of liquid chlorine is being carried on by a firm of alkali makers in Salinders. Until now the only form in which this valuable bleaching agent has been put upon the market has been chloride of lime or chloride of soda, and either of these forms cannot contain more than 38 per cent of available chlorine. The process of manufacturing the liquid is, on the whole, quite simple. The condensing pump is constructed in the form of a U, and is made of cast iron with a lining of lead. The limb of this tube, which holds the chlorine, is partly filled with strong sulphuric acid. The other limb is filled with petroleum and is provided with an ordinary piston. The up-stroke of this piston causes the petroleum to rise and the sulphuric acid to fall. The chlorine is then allowed to rush into the vacuum thus formed from a side tube. A leaden valve arranged at this opening prevents the chlorine from re-entering the side tube. The down-stroke of the metal piston compresses the chlorine through another pipe into the refrigerated receiver, which is also provided with a leaden valve to prevent the return of the chlorine. The chlorine gas is thus moved by a piston composed of sulphuric acid, this being considered capable of withstanding the action of the gas. The receivers in which the chlorine is transported hold about 100 pounds of the liquid. They are built of wrought iron or steel to withstand the pressure exerted on them by the chlorine and weigh about 225 pounds each.

Enterprise of the Brush Company.

About 1 o'clock in the morning of October 13 last a telegram was sent from J. E. Ridall, Pittsburg agent of the Brush Electric Company, to his company's works at Cleveland, to the effect that the station of the Allegheny County Light Company, of Pittsburg, had been partially consumed by fire and twelve 65 light arc dynamos in the plant damaged to an extent which rendered them useless.

This telegram, through some delay, did not reach Superintendent C. W. Phipps, of the Brush Company, at his residence until as late as 2 A.M. Dressing immediately, he hurried to the house of Manager A. D. Dorman of the order department, and after a hurried consultation Mr. Phipps and Mr. Dorman quickly agreed upon a plan of action. Before 11 A.M. the twelve 65 lighters were ready for shipment, a number of the dynamos having to be partially assembled. At 3:35 P.M. they were in Pittsburg, the run having been made in 4 hours and 35 minutes, better than average passenger time.

The total time consumed from the receipt of the telegram by the Brush Company until the machines were delivered at the station was 14 hours.