WATER-PROOF GOODS.

On page 17, of the present volume of the SCIENTIFIC AMERICAN, we noticed the rapid progress of manufacturing in Bridgeport, Conn., and spoke of the American Water-Proof Company as being about to start a large concern at that place. Since our notice the works of that company have been started, and a somewhat extended account of its operations appeared in a late number of the Bridgeport *Standard*—an enterprising and well-edited journal published in that city. The President of the company is Hon. Thomas A. Jenckes, Member of Congress from Rhode Island.

The goods are manufactured under patents granted to Thomas Crossley, agent of the works. The articles manufactured consist of carpets, piano covers, window hangings, water-proof cloth, etc., and an article composed of wool, silk, fur, cotton, flax or other animal or vegetable fiber, in combination with a water-proof compound, which renders the article, when complete, water, dust, wind and moth proof, and, at the same time, imparts to the fabric a firmness of structure and brilliancy and permanency of color. The wool is received at the factory in the fleece, and is passed through the various processes necessary till it comes out ready for the market.

For many years Mr. Crossley has been giving his attention to the manufacture of an article of carpet by the stamping process, which should excel all others in durability, beauty, and price. In prosecuting this work he has met, like all inventors, with many serious obstacles. He invented the first power press ever used for the printing of carpets, a huge mammoth machine, which stands on the first floor of the factory. Before this, however, he tried cylinders, printing after the method of calicoes, delaines, etc., but this would not work. He then invented the mammoth press, and had the designs cut into wooden blocks, but the dye and steam caused the blocks to swell and crack so that they too had to be laid aside. He then formed an idea of electrotyping his patterns, but here again he met with difficulties which electrotypists assured him they could not overcome. Ascertaining the nature of these difficulties he applied himself personally to the task, and was rewarded with success. The next step was to get the designs from which to take the wax impressions, and he originated a very simple, novel, and effectual way of doing it. The room in which this is done, looks like the composition department in a printing office. There are the fonts of types, only instead of having letters on their face, they are perfectly smooth and flat. The patterns are placed before the workmen, the same as the copy before the compositor, and he proceeds to set it up, each color by itself, and, when complete, the form is locked up, and the impression on the wax made, after which the usual mode of electrotyping is gone through, and a metal plate produced, which works under the press.

The materials used in the manufacture of carpets by this process are so firmly and compactly put together by the water-proof compound as to insure them durability. The colors are fastened by steaming. Colors made upon any animal fiber, such as wool, silk or fur, are rendered vastly more durable by this process than simple dyeing. The principal reason is, that steam is hotter and more searching than warm water. Steam expands the fiber which is, when in a healthy condition, hollow or tubular, and forces the color inside the fiber, which, exposed to cold water, as in washing or rinsing, becomes collapsed or flattened, and is made thus to retain the color forever afterward. In the ordinary process of dyeing, the deposit is made on the outside of the fiber, and, consequently, soon wears off or is destroyed by the rays of the sun. This is the chief reason why steam colors are fast, and dyed colors fugitive; not as is generally supposed on account of the peculiar nature of the drug used. The brilliancy and permanency of the color, scarlet, is not the result of the powerful nature of the cochineal used in dyeing, but because the effect of the drug cannot be obtained except the yarn or cloth is boiled in the liquor. It is the boiling that fastens the color, and not the drug—the latter simply gives the shade required. Steaming colors, as it is done by the Company, makes them all alike fast, for all are exposed to the same degree of heat.

THE PROGRESS MACHINE WORKS.

It is always pleasant to put on record instances where energy and ingenuity have been rewarded—where men, firm in the faith that success in life was certain if they did but set to work manfully, determinedly, with a conviction that brighter days were beyond. There are many men in this country that fare sumptuously every day, whose early lives were continual scenes of want, and whose opportunities for education were extremely limited. They have attained what all men seek—riches—by steady adherence to one point, to one line of business, and have suffered nothing to turn them aside.

We lately visited a machine shop in this city, that of Messrs. A. & F. Brown & Co., at Nos. 57,59 and 61 Lewis street, that led us to the reflections above. These men began business in a very small way. They had no capital to speak of, and willingly took such jobs as they could find, *and did them well.* That was the great point—they did the work well—so that those who hired them once did again. In this way they created a reputation for good workmanship, which was the best capital they could have had.

They went to merchants and solicited jobs of repairing, no matter how small or trifling, and, having done them, received their pay. From such small things greater ones sprung, and they now occupy three large three-story buildings in Lewis street, this city, Nos. 57, 59, and 61, which they call the Progress Machine Works. Here they build oscillating steam enginesof a novel pattern, quartz crushers, grain elevators, steam pumps, and a variety of general machinery They also cut gears, or cog wheels, for a number of different machine shops, some of them the largest in the city.

The oscillating engines built by the Messrs. Brown can be found illustrated on page 255 of the current volume, and they have recently designed a very novel and efficient pump, which seems to be valuable. They manufacture a safety governor, which, by a very simple arrangement, stops the engine immediately if the belt runs off, so that no damage is caused by the engine attaining a high speed. This governor should be on all steam engines.

We can commend these machinists to public favor, for we believe them to be imbued with the right spirit—with a desire to make none but the best machines with the best workmanship.

New Photographic Processes.

Cosmos states that M. Julius Schnauss has discovered that an aqueous solution of the soluble constituents of dried raisins, deprived of the tartrate of potash therein contained, is a photographic agent of considerable value in the dry collodion process. It does not matter what sort of raisins are used, the different descriptions only causing variations in the process according to the greater or the less quantity of sugar they contain. The solution is prepared by boiling for several minutes 100 grains of dried raisins in 500 grammes of distilled water; the liquid should be filtered when cold, and crystals of tartrate will soon be deposited. All the other constituents of the juice of the raisins will be found in the remaining liquid. If the water in which the raisins had been boiled had been filtered while warm, some of the tartrate of potash would have remained in solution, and had a pernicious effect on the collodion film. The sugar contained in the solution is the glucose, into which the grape sugar is changed during the dessicating process. The following are the different manipulations which constitute the new process of M. Schnauss:—

The glass plate is first covered with gelatin or india-rubber, as in Major Russell's process, to support the collodion film. Any collodion of commerce may be used, as its composition does not make much difference in the resulting picture. The coated plate is next immersed in the silver bath, and afterward scrupulously washed in water till it contains no free nitrate, the raisin solution being then flowed over it two or three times. The plate is then washed once more and allowed to dry in the dark. The time of exposure with these plates varies from thirty to sixty seconds, according to the quality of the lens, subject, and light; so the process is rather a rapid one. M. Schnauss prefers an alkaline developer, especially one recommended by Mr. Sutton, as follows:—One part of carbonate of soda is dissolved in 500 parts of water; this is allowed to act on the plate, after which it is poured off into the developing glass, and twenty drops of a two-per-cent solution of pyrogallic acid in alcohol added. This is next poured over the plate, and rapidly develops a phantom image; but before the intensification is proceeded with it is necessary to apply a weak solution of acetic acid to the plate to remove all traces of the alkali, and so prevent fogging. The picture is then intensified with pyrogallic acid and nitrate of silver in the usual manner. The process is both simple and rapid in its results, but the plates so prepared will not remain in good condition more than forty-eight hours. Their keeping qualities are not good.

The same number of *Cosmos* contains a method of intensification by means of a double cyanide of iron and uranium. One solution of ferrocyanide of potassium is prepared, and another of sulphate of uranium, and at the moment they are required for use the two solutions are mixed in equal proportions. When the two are mixed decomposition takes place, sulphate of potash and a double cyanide of iron and uranium remaining in solution. When this is poured over a negative already fixed, the double cyanide turns all the reduced silver on the image to a deep brown color. By means of this intensifier, says M. Hermann Selle, the tone of the negative may be deepened as much as is judged necessary, but if the solution be very concentrated the action is instantaneous. The negative blackens very much in drying, but after varnishing it recovers its former degree of intensity. This method of intensification is considered a very good one for the reproduction of engravings, since the deposit is both vigorous and regular.—*British Journal of Photography.*

New Photographic Developer.

M. B. de Montfort has discovered a new developer, with which he is so pleased that he says that, when photographers have once tried it, they will thenceforth use no other. "I do not," he says, "say that the idea of mixing sulphate of copper with protosulphate of iron is new, but I make the mixture in a different manner and in entirely different proportions to those hitherto tried by any other photographers.

"I first dissolve five grammes of sulphate of copper in 100 grammes of common water. When the solution is complete I add to it 200 grammes of a saturated solution of protosulphate of iron. I next add five grammes of nitric acid, as well as 1,500 cubic centimeters of water, and filter the whole.

"This developer brings out the image very rapidly, yet it is not necessary to pass it over the plate so very quickly, to avoid stains and spots, as is the case in a very strong iron developer. I never have stains or spots. But that which is a most decided advantage is, that the intensification can be proceeded with with the same solution, without taking the trouble to employ new. It suffices to pour it back into the developing glass, and to add five or six drops of a three-per-cent solution of nitrate of silver. The intensification may be commenced immediately without even washing the plate, and will proceed without stains and much more rapidly than with the pyrogallic acid used by most photographers, after the development with iron. However, if the time of exposure has been right, there will be no necessity to intensify at all, as the developer will at once give a vigorous and transparent image. The process is evidently an economical one, both as regards materials and time. The collodion I commonly use contains nothing but iodide of ammonium and bromide of cadmium."

Should other photographers obtain the same results, it is evident that this developer must come into common use, and we recommend a trial of this new process by our English readers.—*British Journal of Photography.*

IRON CARS.—A correspondent suggests that if cars were made of iron there would be an immense saving of life and limb. He instances that, in the summer of 1862, he accompanied an excursion train from Cambridge to Portsmouth, when there was a collision which killed and wounded many passengers. One car in the train was made of iron, and not one person suffered injury.

A GENTLEMAN named Frye has invented a traction engine for hauling carriages on common roads which weighs only 32 tuns.