

## Recent Foreign Inventions.

**WOOD SCREW TREENAILS**—William Hall, of Aberdeen, Scotland, patentee. This patent is simply for the employment of wood-screw treenails for shipbuilding purposes, as substitutes for the common round, square, or octagon wood treenails, now used.

**MINER'S FUSEES**—M. Davy, England, patentee. The inventor proposes covering these fusees with a substance which shall be an efficient protection against moisture. The fusee being made, it is placed within a tunnel, and passes out from its top, which is pierced with a small hole. This tube is then filled with a liquid of the following composition:—1 part resin, 1 part Burgundy pitch, 4 parts gutta percha. This mixture is placed in a furnace heated by steam; this steam, conducted by a tube, serves also to heat the conical reservoir in which the liquid has been turned. The fusee is rolled upon a large bobbin, and by means of a crank it is unrolled and made to pass in the tunnel; in quitting this it is passed over a pulley plunged in a vessel of cold water, and is rolled upon another pulley which is above the water.

**DRYING GRASS**—Henry Saunders, of Staines, Eng., patentee. This invention consists in causing grass, corn, and other crops, to be artificially dried by their being carried immediately after being cut, to a drying apparatus, which consists of an enclosed chamber, into and through which warm dry air is forced to evaporate the moisture, and cure the grass or other crop. This is exactly the plan we recommended a few weeks ago, when commenting on the remarks of the "Tribune," on the curing of hay by steam. We knew nothing of this patent being granted when our remarks were penned.

**WOODEN CARDS FOR JACQUARD LOOMS**—C. Charles, of London, patentee. This invention consists in substituting thin sheets of poplar, pine, or other similar soft woods, free from knots, in place of pasteboard cards. The material is cut from blocks into very thin sheets, then dipped in a weak solution of glue, and placed in a press. After being in the press for about an hour, they are taken out, immersed in a glue solution again, and then passed between rollers. A sheet of paper is then laid on each side of a slice of wood, and a number of pieces thus treated are laid upon the top of one another and placed in a press until they are nearly dry. They are then taken out and exposed to the air, after which they are ready to be punched like common cards according to the pattern required.

**REFINING SUGAR**—R. Galloway, of Cartwell, England, patentee. This improvement in the manufacture of sugar consists in employing tannic or gallic acid, or a compound of both, combined with potash or ammonia, in conjunction with the acetates of lead, which are now used in refining sugar.

**ARTIFICIAL STONE**—G. Juste, of Paris, patentee. This invention consists in manufacturing stones from all kinds of sand, and metallic ore. The inventor first submits these materials to the action of strong heat in an oven, and when they are at the point of red heat, they are taken out and reduced to powder in a large mortar, by stamping. The substances thus reduced are then mixed with some fluxes for easy fusion, such as boracic acid, oxyd of lead, and lead and soda. They are then melted in an oven, from whence they are taken out and thrown into a vessel containing cold water. After this these matters are again triturated and reduced to an impalpable powder, and after being pressed into moulds of fire-clay, are placed in a potter's oven, where they are submitted to a great heat. After this they are withdrawn and found to be moulded into blocks according to the form of the moulds. The moulds may be of any pattern, ornamented or merely useful.

[Collated from our foreign cotemporaries, the "Mechanics' Magazine," "Newton's Journal," "Artisan," and "Mining Journal," London; "Genie Industriel," "L'Invention," and "La Lumiere," Paris, and the "Glasgow Mechanics' Journal."]

They are about introducing the American railroad car into England. It is admitted to be, in every respect, superior to the car now in common use on the English railways.

## To Detect Cotton in Woolen or Silk Fabrics.

The following is from the writings of Dr. Pohl, a German Chemist:

The author employs a solution of picric acid in water of alcohol for the distinction of vegetable from animal fibre. The original watery solution is diluted with 6 parts, the alcoholic with 16-20 of water; a small piece of the stuff to be examined is then dipped in the solution. In from six to ten minutes of ordinary temperatures, or in two or three minutes when the fluid is heated to 105°F., the stuff of yarn is taken out and washed with water. Stuffs made entirely of cotton or linen appear perfectly white after washing; but those consisting of wool, or silk, or other animal fibres, acquire a yellow colour, it being understood that undyed stuffs are to be used in the experiment. In mixed stuffs the animal fibres appear coloured, whilst the vegetable fibres remain white. The test is so exact, that even in those stuffs or yarns in which the individual threads consist of both substances, the proportion of animal and vegetable fibre can be exactly ascertained by means of a lens. By the employment of an ordinary thread-counter, the number of vegetable and animal fibres in these mixed fabrics may be ascertained with sufficient exactness.

This test may also be employed with most dyed stuffs; at least it may be applied to orange, red, fawn color, rusty yellow, violet, every kind of blue, and some browns. Thus, as the mordants usually employed, as alumina and salts of tin, and lead and iron compounds, do not produce any essential change in the yellow color of picric acid, but only deepen it more or less, stuffs dyed with the above-named colours undergo no remarkable change by being dipped in the test-solution, if they consist of vegetable fibre; but a change always takes place when animal fibre is present, and this will always indicate with perfect certainty whether a stuff consist of animal or vegetable fibre or of a mixture of both. Thus wool dyed red becomes changed by picric acid into orange-red or orange according to the shade of the original color, whilst rusty yellow becomes bright yellow, blue colors green, and green greenish-yellow.

[It is very easy to tell whether cloth is made with a cotton warp, (such fabrics are now very common and liable to deceive the uninitiated) and a worsted or silk weft, by simply pulling out some of the weft threads at the end of the piece, and applying the light of a match to the warp. If the latter is made of cotton, it will burn with a flame, if woolen or silk, it will burn or singe away, without flame. There is a great amount of cheap textile fabrics manufactured at the present day, and sold with the assurance that they are wholly composed of wool or silk, which have considerable cotton mixed with them in the carding process. Of course, the method for detecting such base fabrics must be subtle, and that recommended by Dr. Pohl, may be very excellent. Those who purchase goods at retail, in stores, however, have no appliances, and no disposition to try such experiments; to them it is of little value. The simple test we have given is of more value to the retail purchasers, for it can be practised by all at no expence whatever.

## The Monument of Galileo at Florence.

The following interesting extract is taken from Prof. Silliman's visit to Europe:—"The noble monumental memorial of Tuscany's greatest philosopher is, however, the central point of attraction in the Museum for the lover of science. It is the most complete, appropriate, and interesting personal commemoration which we saw in Europe. Two large apartments, in the most perfect style of Roman architecture, have been consecrated to the greatest genius of Tuscan science. They are joined by connecting arches, forming a rich atrium in the style of Bramante, the antes, pilasters and flour being encrusted with polished marbles and hard stones, all the produce of Tuscany. At the farthest end stands a noble full-sized statue of Galileo, designed by Asioli, and sculptured by Costoli, Florentine artists. This statue is in full drape, gathered by the left hand into rich folds, while the right rests upon a pedestal carved with the diagrams, containing some of his celebrated propositions. The ceilings are domes, and richly decorated with panels, in which

beautifully designed frescoes, in vivid colours, commemorate the noble discoveries of Galileo, and of the other Tuscan philosophers. In one, Leonardo da Vinci communicates before the Duke, and an assembly of admiring listeners, the state of mechanical science in the early part of the sixteenth century. This is the most classic and elegant of all the compositions in fresco contained in the apartment. Others illustrate the first experiment of Galileo on the law of falling bodies, the discovery of the measurement of time from the oscillation of the pendulum, the invention of the telescope, and other subjects commemorative of the discoveries of the Florentine academicians. Busts of many of the more celebrated of these rest on pedestals surrounding the inner room, medallions, in bas-reliefs, of other philosophers and poets fill the spaces under the cornice. In hexagon spaces between the groinings of the arches are allegorical figures of Nature, Truth, Perseverance, and Physical Science, while corresponding spaces are filled up by medallions of Philosophy, Astronomy, Geometry, Mathematics, and Mechanics.—All these are graceful, dignified female figures, seated and surrounded by appropriate emblems. One of the frescoes in the anterior rooms represents Volta demonstrating the immortal experiment of his pile before the French Academy at Paris in 1801. Napoleon, as a member of the institute, views with the most interested attention this novel experiment. Monge, Berthollet, and Vanquelin surrounded him. Fonroy looks on with wondering delight, while La Place, Lapeyrou, Cuvier, Legendre, Morveau, and Biot are recognised amongst the crowd of illustrious spectators. Tuscany had good occasion to be proud of her great names in art, science, and literature; and all who visit this delightful temple of Galileo must feel that the present Grand Duke is deserving of praise for his monument, however we may regret his espousal of principles since the revolution of 1848, so hostile to the best interests of his people.

## The Air Pump of the San Francisco.

MESSRS. EDITORS—There seems to be a great deal of discussion as to what was the cause of the mishap to the steamer "San Francisco." I call it mishap, because it cannot be called an accident. Had her engines been built the same as those of the steamers "Illinois" or "Golden Gate," as many of the papers stated, she would not have met with the mishap. The "San Francisco" used oscillating engines, but the air-pump, the immediate cause of the disaster, was driven by a separate engine, and was built for one of Pirsson's condensers, which failed to do its work, and one of common construction was put in its place, which of course was of much greater capacity. Hence the cause of the disaster was, that the air-pump was not half large enough to free the engines, and particularly in the gale when they were driven to their utmost capacity. Any one at all acquainted with machinery will see the absurdity of driving the air-pump of a steamer by a separate engine. They had great difficulty with that same air-pump on her trial trip.

Another thing which tended greatly to the mishap, was that she was loaded much beyond her capacity, with coal, provisions, &c., and she was much worse off when her upper works were carried away. J. NEWTON, JR.  
New York, Feb. 2, 1854.

## Rather Alarming.

The Spiritual Telegraph has an article headed—"Lock Picked by Spirits!"—to which the "Boston Investigator" responds, that "there is too much of this business carried on by sinners in the flesh, without having any additional help from the spirit world; but we would rather see a spirit pick a lock than to read about it. By the way, since the spirits are said to possess a great amount of physical power, why don't they do something useful with it? Tipping up a table or knocking on a wall don't do anybody any good. Let them manage the brakes of an engine when a house is on fire, or stop an omnibus when it runs away with a load of passengers, or drag the boys out of the ice when they fall in while skating and thus save them from drowning, and they will then make themselves useful and greatly increase the number of their

believers. We have had enough of tappings and rappings—now let's have something from the spirits that will be of practical benefit to their brethren in the flesh."

## Our Prize Awards.

MESSRS. MUNN & Co.—I have this day drawn upon you for the Prize awarded me for the list of subscribers sent you for the "Scientific American." I am sorry that my business would not permit me to devote more time to extend the list. It is a pleasure for me to canvas for your very valuable paper, and I attribute my success to its sterling character more than any other cause. The first prize was unexpected, therefore the more gratifying to me. You will please accept my thanks for the promptness of the information of my success. I have received applications to canvass for other works, which I respectfully decline. Yours, &c.,

J. N. SCOFIELD.

Columbia, S. C., Jan. 27, 1854.

MESSRS. MUNN & Co.—Yours containing \$20 is received. All right. Thank you, gentlemen for the liberal course you have pursued. If I remain here, which is doubtful at present I shall endeavor to extend the circulation of your paper to one hundred subscribers to the next volume; and if I leave this place I will with pleasure do all I can wherever I go, to put the "Scientific American" (as it should be) into the hands of every mechanic.

JOHN GARST.

Dayton, Ohio, Jan. 31, 1854.

[The awards of our Prizes, so far as we can judge, seem to have given satisfaction to all parties. The successful competitors say that no great amount of labor was necessary for obtaining their lists.

## Supreme Court of the United States.

We are indebted to William Whiting, Esq., of Boston, Mass., for a copy of his argument delivered in the U. S. Supreme Court, in the case of Brooks et al. versus Fiske & Norcross. It will be remembered by many of our readers that Judge Sprague, of the Circuit Court, delivered an opinion in favor of Norcross, and adverse to the claims of the Woodworth assignee. The present argument was delivered in behalf of defendants, on the appeal taken by the plaintiffs, and for searching power of analysis and cogency of reasoning, it is a masterpiece. Mr. Whiting shows up the claims of the Woodworth machine very clearly, sufficiently so to satisfy any reasonable man that the Norcross machine is no infringement.

## A New Clock.

Among the late inventions announced is a curious one by Mr. Robert M. Kerrison, of Philadelphia. It is a clock, different from any heretofore made, in being without the slightest noise or any alteration in its motion, and, from this latter fact, promises to be the greatest use in the science of astronomy. In this clock Mr. Kerrison has succeeded in overcoming a difficulty which has been made the study of scientific mechanics for nearly two centuries, being attempted by Huygens as early as 1768.—[Exchange.

[This is rather a profound description of this wonderful clock.

## Names of Sizes of Printing-Paper.

Formerly such names as Flatcap, Demy, Medium, Royal, Super-royal, Elephant, Double Medium, Mammoth, were used to designate regular sizes of printing-paper; but at present such paper is designated chiefly by inches, as 25 by 28, etc. Only a few of these names are now much used to denote a standard or particular size of paper; these are, Flatcap, 14 by 17 inches; Medium, 19 by 24 inches; and Double Medium, 24 by 38 inches. Printing-paper is bought and sold by the pound, the price varying according to quality, from ten cents to sixteen cents, for the paper commonly used for such purposes.

## Long Hair.

Sir C. Wilkins states, that while he was a resident at Benares, he saw a fakir, the hair of whose head reached the enormous length of twelve feet. The tails hair of the Chinese frequently reach the ground! and their mustaches have been cultivated to the length of eight or nine inches.