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FIRE-ESCAPES.



THE burning of a number of human beings which has been repeatedly done within the last few months, has sent a thrill of horror through the community, and has completely aroused our citizens to a determination to adopt the most effectual means possible to prevent the recurrence of such events in future. In carrying out this resolution several kinds of apparatus are offered for our choice, three of which have been recently pressed

upon the attention of the public. One of these consists of the several modifications of the extension ladder, to which class belongs the apparatus in use in London, of which we present an engraving on another page.

Another device which has been attached to the top of the City Hall and exhibited to crowds in the Park, is a canvas tube stretched from the top of the building at an inclination to the ground so that persons might slide down through it with ease and safety. This of course requires some accessory apparatus for raising its upper end and attaching it to the building, and is objectionable on account of its great weight and its liability to take fire from the flames issuing from the windows.

But the system which has attracted the most favorable notice is that exhibited by some of our German citizens and which has been in practical use in Germany for several years. It consists of a light ladder about 15 feet in length, with stout iron hooks at the upper end, of sufficient size to catch over the window sill. The fireman hooks the ladder to the sill of the window above him, mounts and enters the window, then draws up the ladder and hooks it to the window of the next story above, thus ascending one story at a time, and reaching the top of the highest building, simply by means of one short ladder. He carries at his belt on one side a small axe for prying open doors &c., and on the other a coil of strong cord, of the very best material, about $\frac{3}{4}$ of an inch in diameter, and 90 feet in length. With this cord he can draw up one end of a canvas tube if needed, or he can let down any person, or even, in a case of emergency, use it for his own escape. It is impossible to conceive of any apparatus cheaper, lighter or more portable than this. One man takes it on his shoulder and runs with it through the empty streets or makes his way through a crowd almost as fast as he could without any incumbrance, while the exceedingly low cost would enable these ladders to be provided in almost unlimited numbers, so that some one of them might be in the immediate vicinity of every house in the city. Each fire-engine and hose carriage could be furnished with one or more, and the firemen trained to their use.

Let, however, the several plans proposed be fully examined, not, by any means, neglecting the numerous modifications of the extension ladder. We understand that one of these, 80 feet high, is in practical operation in Albany, and is giving very complete satisfaction. We shall next week present to our readers an engraving of

one of the best of this class of fire-escapes, with a full description.

Not less important than the selection of the best apparatus is the adoption of the best plan for the organization and support of the establishment. In France, of course, this matter, as well as almost all others, is under the control of the government, which likes to have its finger in every pie. The Frenchman is taught to look to the police for directions almost how to tie up his children's shoes and wipe their noses. But all people who have acquired that highest and noblest of all arts—the art of self-government, have discovered that nearly all affairs can be more efficiently and more economically conducted by a compact and intelligent voluntary association, having but one object of attention, than they can by the clumsy machinery of the national or municipal organizations. All experience teaches us that if we leave this matter to our city government, it will probably be some two or three years before they will come to a decision, after which it will take at least several months more to go through all the processes of advertising for contracts, and getting the thing into practical operation. But a society might be organized, the funds raised, the apparatus constructed and properly distributed, all ready for use, in the space of one month.

It is creditable to the humanity of the city that such a movement has been begun, and we have no doubt it will commend itself to the favor and support of the community. Such reasonable aid as the association may ask of the city government, should certainly, under proper guarantees, be promptly conceded, but we hope no delay will take place for the sake of awaiting this action of our municipal authorities.

JUDGE MASON IN WASHINGTON.—People come from a distance often to consult Judge Mason on matters of infringement, interference, appeal, extension, &c.; and they are disappointed to learn that he is temporarily absent, and that they cannot see him. For ten days past, Judge Mason has been in Washington, conducting one of the most important extension cases ever brought before the Patent Office. On the 16th inst., he will return to this office again, and be prepared to consult with inventors and patentees as usual. All communications on professional business should be addressed to MUNN & Co., No. 37 Park-row, New York.

NOVEL AND EXCITING SPORT.

The breaking-up of the ice on the North river has brought to an end, for this season, a series of the most exhilarating of all winter sports, which have kept the inhabitants of the several towns and villages along the Hudson, from Cold Spring to Troy, in a state of merry excitement during the past winter. The idea of sailing on the ice by the force of the wind has probably occurred to hundreds of people, and many attempts have been made to reduce it to practice, but it has been reserved to the inhabitants of this State to produce a really practical ice boat, and, as in many other things, the reality surpasses the most extravagant anticipations which had been formed in regard to it.

The speed of the ice boats is the thing which is especially astonishing, and which makes this sport so intensely exciting. With a strong breeze they glide with the velocity of a dried leaf over the ice, sweeping past the express trains of the Hudson River Railroad, literally on the wings of the wind. They are also found to be far more completely under the control of the helmsman than any water boat, a change of one-sixteenth of an inch in the position of the rudder altering at once the direction of the boat, and being sufficient even, when close hauled, to shake the wind out of the sails.

The practical ice boat is of triangular form, with one angle at the stern and one side forward, and is fitted with outriggers which are attached to a plank laid across the bow. These outriggers are runners, and the boat rests upon them and upon the rudder, which is also a runner. If the boat is 12 feet long, the runners are placed 12 feet apart. A light platform rests upon these three supports, and thus the whole thing is cheap and simple. A sloop rig is adopted; the sailor reclines comfortably at the stern, enveloped in furs, with or without the company of one or more fair companions, and sails swiftly along in the fastest vehicle that was ever yet under the control of a single rider.

We are told, by Mr. Stevens, of Poughkeepsie, that there has been the greatest rivalry all along the river in

getting the fastest boats, and that thousands have gathered on the banks to witness the gliding, turning and swallow-like sweeping of these sailors of the frozen sea. No doubt another winter will witness the spread of this rare and rollicking sport all through the northern portions of the country; and gentlemen who wish to keep up with the times will do well to have their boats ready in the Fall, to lead off the fashionable fun in their respective neighborhoods.

PRESENTATION OF A GOLD SNUFF-BOX TO AN INVENTOR.

We have just seen a magnificent gold snuff-box which was presented by the Boston and Lowell and Nashua and Lowell Railroad Company to the Hon. Henry Ruttan, of Cobourg, Canada West, as a recognition of the value of his plan for ventilating cars. Judging from its color, we suppose it is 24 carats fine; that is, absolutely pure gold. It is elegantly modeled and engraved, and cost about \$350.

The one intolerable annoyance of railroad traveling in dry weather is the dust. It rolls up in smothering and suffocating clouds, not only loading the eyes and mouth and nose and ears of the passenger, but penetrating every part of his clothing, and completely covering him from head to foot. We know of no greater boon that could be bestowed on the whole traveling community than the complete abatement of this insufferable nuisance; and we are not surprised at the readiness of our railroad companies to recognize the value of a successful invention for this purpose.

Mr. Ruttan has been engaged several years in investigating the subject of ventilation, and has devised a plan which is stated to render cars perfectly free from dust in the summer, and to supply them abundantly with pure air in the winter. He takes the air in at the top of the car, carries it around the sides and under the bottom, where it passes over a shallow pan of water, into which it deposits its dust. It then rises through pillars in the car, and is distributed above the heads of the passengers, passing out in the rear, and forming a gentle current, clean, cool and refreshing.

We are glad to find that some of our railroad companies are abandoning the "old foggy" conservatism which has caused them to turn the "cold shoulder" to the inventors of all improvements in their line; and we trust that travelers are not much longer to be smothered in the dust which they have been condemned to breathe ever since the introduction of railroads.

OUR CORRESPONDENCE.

We invite attention to the varied character of the correspondence in the present number of our paper, contributed by all classes of minds—from the tyro of eleven years, making his first timid essay in experimental philosophy, to the veteran and illustrious masters of every science. We desire to encourage this correspondence on all the broad fields embraced in science and the mechanic arts, making our journal more and more the medium of intercommunication between all the varieties of intellects throughout the land; not doubting that, in this way, we shall best adapt it to the multifarious tastes to be found among our thousands of readers.

HOWE'S SEWING MACHINE TRIAL.

In our correction (on page 224) of a notice of the above trial we stated that the court ordered an injunction against the defendants. We should have added that the court ordered the parties to be enjoined unless they gave bonds, and that one of the defendants—Mr. Williams—entered the required security; so that no injunction was placed upon him. His case will come up for full trial hereafter.

THE RENOWNED GENERAL TOM THUMB!—With our family we spent an evening last week, very pleasantly, at one of this little gentleman's levees, which he nightly holds at Hope Chapel, No. 720 Broadway, in this city. We first saw the General fifteen years ago, when we thought him one of the greatest wonders of the age. Since that time he has traveled over the continent of Europe twice, and has been exhibited in every city and almost every town in the Union. The marks of age begin to creep upon the General's fair face, arising probably from his almost constant exposure in traveling by sea and land. Charles C. Stratton is the General's real name, and to his first manager—P. T. Barnum—he is indebted, we believe, for his professional name. The

subject of these remarks is 22 years old, perfectly formed in every respect, is intelligent, well educated, and weighs only 33 pounds! There are few places in the city where the old and young can spend an hour more pleasantly than by dropping into Hope Chapel, any afternoon or evening, and witnessing the exhibition of this very small specimen of humanity.

CHILDRENS' CONFIDENCE—HOW THEY SHOULD BE TREATED.

The annexed article (copied from *Life Illustrated*) we commend to the perusal of parents. It contains good practical advice; and if it is diverging a little from our sphere to publish such articles, we are sure it will be read with interest and benefit by many of the readers of the SCIENTIFIC AMERICAN:—

"Do you want to learn how to make the children love you? Do you want the key that will unlock the innermost recesses of their natures? Then sympathize with them always. Never allow yourself to ridicule any of their little secrets. Never say, 'Oh, pshaw!' when they come to show you a new kite or marvelous top, and 'I can't be troubled,' when the hard knot won't be untied, and two and two obstinately refuse to make four on their little slates. Kites and knots are only the precursors of older thoughts and deeper trials which the parents may one day plead in vain to share! Don't laugh at any of a child's ideas, however odd or absurd they may seem to you; let them find your sympathy ready in all their wonderments and aspirations. Is there any man so wise in his own conceit as to have forgotten that there was a time once when he, also, was a child? The little folks are too much crowded out in this world; people generally seem to think they can be put in anywhere, or made to eat anything, or crammed into any out-of-the-way corner, to amuse themselves anyhow. We don't agree with these cross-grained wisecracks. Children have just as much right to the car window and easy seat as anybody. It don't take much to make a child love you and trust in you, and the benefits to him are absolutely incalculable. Oh, how much better it is for children to bring all their cares and troubles and temptations under the gentle eye of a wise parent! What a safeguard it is for them to feel that there is always a kind ear to listen to their doubts and griefs, and a gentle shoulder for their little heads to nestle against! Respect their rights; never think you can say bitter things in their presence, or do unjust actions. They are the finest discriminators of fair and unfair in the world. Somebody says: 'When you are inclined to be cross with children for being slow to learn, just try a moment to write with your left hand. See how awkward it proves, and then remember that with children it is *all* left hand!' Preserve us from those precocious infants who spring up ready-made philosophers and casuists; cherry-cheeked little blockheads are infinitely preferable. Above all, do not be ashamed to let them *know* that you love them. Remember, they will be men and women some day, and the slightest word which may influence their future lives should become a thing of moment in your eyes."

UNDERDRAINING WITH MOLE PLOWS.—Writing from Madison county, a correspondent of the *Ohio Cultivator* says: "I know of some ditches that have been in operation in this county near three years, and the unanimous testimony thus far is, that they are now better than when first completed, and that instead of crumbling and filling-up, (as many would have us believe is the case), they improve with use and age, and now discharge more water and more freely than at first. Now this cannot be ascribed to great falls, thereby giving the water a strong forward impetus. On the contrary, this country is notoriously level, and particularly those sections that have been ditched with little descent—mostly natural prairie lands; and yet these same ditches, many of them, have furnished an abundance of clear, good water for stock, even during the greater part of the extreme drought of the past summer, when wells, stock-pools, and running streams failed in part or entirely, and this supply, too, coming from fields that had hitherto been cultivated in corn with fair results, and were but a few years ago considered sufficiently drained by natural surface drainage. But our farmers now find that the more underdrains through their fields, the better results and returns for labor, and that, in either wet or dry summers, crops mature earlier and better when the ditcher has been most employed."

AMERICAN NAVAL ARCHITECTURE.

[Reported expressly for the Scientific American.]

THE STEAMER "AUSTIN."

This steamer is from the hands of the well-known builders, Harlan, Hollingsworth & Co., of Wilmington, Delaware, and adds another to the many well-earned triumphs in the construction and ultimate success of fast and sea-worthy steam vessels. She has just left this port for her appropriate place on the route of her intended service—New Orleans to Brazos. We herewith give full and minute particulars relative to her construction:—Length on deck, from fore part of stem to after part of stern post, above the spar deck, 204 feet; breadth of beam (molded) at midship section above the main wales, 34 feet; depth of hold 10 feet; depth of hold to spar deck, 17 feet 9 inches; draft of water at load line, 7 feet 8 inches; dip of wheel at load line, 5 feet, 3 inches.

Her frame is of wrought iron plates, $\frac{1}{2}$ to $\frac{3}{8}$ of an inch in thickness, and securely fastened with rivets $\frac{5}{8}$ of an inch in diameter, every 2 $\frac{1}{2}$ inches. The floors are shaped I, molded $\frac{1}{2}$ inches; sided 1 $\frac{1}{2}$ inches; depth, 18 inches; thickness, 7-16 and $\frac{1}{2}$ of an inch, and finished with angle iron. Frames are 16 and 18 inches apart at centers; keel 5 inches deep, shape U, double. Keelsons are 12 in number, fore and aft, 20 inches high by $\frac{1}{2}$ of an inch, and 9-16 of an inch in thickness; ceiling of white pine, 2 inches deep on the top of keelsons.

She is fitted with one powerful vertical beam condensing engine; diameter of cylinder 44 inches; length of stroke of piston 11 feet; diameter of water wheels 30 feet; material of same, iron; number of blades, 26; width of blades, 6 feet 7 inches; depth of same, 1 foot 11 inches.

She has one return tubular boiler, the length of which is 24 feet; width, 16 feet; and 9 feet 2 inches in height; located in hold, and has a water bottom; does not use blowers to furnace. The fire bars are 6 feet 4 inches in length; flues below in boiler are 8 in number; flues above, the same; length of flues above, 19 feet 3 inches; length of flues below, 15 feet 8 inches. Ample protection with iron and felt has been made against fire communicating to the wood-work from the boiler.

The height of smoke pipe, above grates, is 51 feet; diameter of same, 65 inches; area of heating surface, 2,000 square feet; capacity of coal bunkers, 265 tons. She has one smoke pipe, one extra size independent steam fire and bilge pump, one bilge injection, and bottom valves or cocks to all openings in her bottom. She has three water-tight athwartship bulkheads, and four cargo or loading ports. The maximum pressure of steam is 25 pounds; cut off at half stroke, and the maximum revolutions at the above pressure are 17.

Hercabins are finely fitted-up and afford pleasant and comfortable accommodations for passengers. She is owned by Charles Morgan, Esq., of this city. The tonnage of this steamer is 650 tons.

WEEKLY SUMMARY OF INVENTIONS.

The following inventions are among the most useful improvements patented this week. For the claims to these inventions the reader is referred to the official list on another page:—

WELDING TOGETHER LARGE WROUGHT IRON PLATES.

If large plates or planks of wrought iron such as are used for steam boilers, ships' "skins," decks, &c., could all be welded together in one piece, instead of riveted, the same strength would be obtained with two-thirds the thickness of metal, or with the same thickness of metal one-third more strength would be obtained. J. C. Cooke, of Middletown, Conn., has devised an invention which consists in effecting the above object, and in welding together very large and unwieldy planks of wrought iron, such as cannot be brought to the smith's forge, by the employment of a portable apparatus consisting of hammers or rollers which may be clamped to the plates to be welded, and moved along as the welding proceeds; and also in the use of the aero-hydrogen or oxy-hydrogen flame, for heating the plates to the "welding point," thus virtually taking the fire to the work instead of the work to the fire. The gas used excludes atmospheric air from the plates at the welding point, and thus prevents oxydation and consequently the formation of scale.

FILES.

This invention is more especially applicable to files for filing soft metal and their alloys and wood, its object

being to prevent the clogging of the teeth, which is the cause of so much trouble in the use of files of ordinary "cut" on such materials. It consists in the combination with a suitable transverse cut, of longitudinal grooves. The credit of this invention is due to Pietro Cinqini, of West Meriden, Conn.

POLYGONAL SHAPED ARTICLES.

This invention consists in combining a turning lathe having a pattern attached, with a rotary planer and turning tool in such a way that the work is first turned and then planed or cut in polygonal form; the pattern serving as a guide to both the planer and turning tool. The invention also consists in a peculiar arrangement of the planer and the turning tool, whereby they may be readily adjusted in the prosecution of the work, as may be required, and allowed, when at work, to be perfectly operated upon by the pattern so as to effect the desired end. The inventor of this improvement is John Cook, of Buffalo, N. Y.

GRINDING MILL.

This invention consists, 1st: In an improved mode of hanging the runner, whereby it is allowed, as it rotates, to conform to the position of the stationary stone, and the parallelism of the two stones preserved. The invention consists, 2d: In an improved bush, constructed with a view of keeping the spindle perfectly lubricated, and at the same time confining the oil within its chamber and protecting the same and the part of the spindle within the bush, from dust and the admission of all other improper substances. These improvements were designed by Edmund Munson, of Utica, N. Y.

MEASURING FAUCET.

This invention consists in applying a weighing device to a faucet in such a way that the substance to be drawn may be measured by weight, and the flow of the substance be automatically cut off by the gravity of the same, when the proper or desired quantity has passed into the vessel prepared to receive it. This device has been patented to George K. Babcock, of Utica, N. Y.

FOREIGN NEWS AND MARKETS.

Conroy's Cork-cutter.—A recent number of the London *Spectator* has the following article on American ingenuity, as exemplified in the manufacture of corks by machinery invented by Edward Conroy, of Boston, Mass., who obtained a patent, through the Scientific American Patent Agency, on Nov. 2, 1858. An illustration of this ingenious machine was published on page 345, Vol. I. (new series) of the SCIENTIFIC AMERICAN:—

"Hamlet alludes to a certain large form of cork with contempt; but Hamlet, excellent as he was in qualities of head and heart, was not a practical man. Even he, however, might have been impressed with the statistics of the trade, if Horatio had brought them before him. Take the number of corks alone: how many are there used in London daily? One million. One city firm consumes 7,200,000 annually. What is the function of the cork? It is to combine thorough inclosure of fluids we value, for health, for pleasure, for medicament, with thoroughly ready outpouring. Of course, in a population of 2,300,000—exclusive of the British empire ("on which the sun" &c.)—it is important to keep up the supply of these precious but perishable helps; but heretofore the making of corks has been an art and mystery. The cork-cutters boasted that the thing could only be done by hand. The cork was, as it were, the outpost of the printer's composing desk; it has surrendered; corks are cut by machinery. On the 3d of September last, we described a machine which accomplished the work well and rapidly, insomuch that two men could turn out 100 gross in 10 hours—14,000 a day, or 4,300,000 a year—or about one-ninetieth part of the corks needed by this devouring metropolis. So well are the vast figures of modern statistics to be met by modern mechanical invention. But we have a growing population, and a wine trade about to enjoy a sudden development; and we have this week described the more powerful machine to meet that larger want. The cork-cutters must be delighted. Not at all. Like Austria, instead of identifying themselves with the progress of the age, they identify themselves with its petrified 'stability.' They are firm in the faith that corks can only be cut by hand; they are sure that they ought only to be so cut; and the consequence is that the trade is passing out of their hands to that of boys, the rising cork-cutters, the cork-cutters of the future! For, with the new American machine, one