

poor "in populous cities pent." For persons other than very young children—that is to say, persons over eight years of age—the charge for a cold bath, including the use of "one clean towel," is to be one penny only; for a hot bath, with the use of a towel, twopence. For several children, not exceeding four, including the use of a clean towel for each child, the charge for a cold bath is fixed at twopence, and for a warm bath, fourpence. Where, in such bath-houses as may be erected under the authority of the Act, open bathing-places are provided for the use of a number of persons at one time, the charge for each person bathing is to be one halfpenny.

The majority of the public are, I believe, ignorant of the provisions, if not of the very existence of this excellent Act—excellent, unfortunately, only in so far as its provisions are concerned, but defective on account of the circumstance that these provisions are permissive. Being simply permissive, they have proved to a large extent, as we have seen, to be a dead letter. And why is this? The answer is, that our local authorities, in a very large number of instances, have not yet been educated up to the point of appreciating the inestimable benefits to be derived from a regular and systematic use of the bath. In a few towns, it is true, some very excellent public baths have been erected under the powers of the Baths and Wash-houses Act. But, where this has been done, the wants of the poor have not in the majority of instances been sufficiently considered, for the bath-houses have been mostly placed out of the immediate reach of the poor, and have been constructed rather with a view to ornamental effect than to use. To encourage the poor to use them, they should be built near their houses, and it should be as much the duty of medical officers of health, and other public sanitary officers, to inculcate the necessity—nay, the duty—of a constant resort to the bath, as to insist upon obedience to the provisions of the Public Health Acts.

It seems to me that there is a great and good work in this direction to be performed by our School

Boards, which are now entrusted with the education of the children of the poor. Fortunately, the mistaken notion which used to prevail, that education merely concerned the acquisition of a certain amount of book-knowledge, has been exploded, and the importance of physical education is being duly recognised. Military drill, for instance, now forms a part of the physical curriculum in a large number of the elementary schools of the country; and the London School Board some time since, I am glad to say, sought from the Commissioners of Public Works, for the children of some of its schools, the special permission to bathe in the public parks.

Why should it not be as compulsory upon the children in our Board Schools to receive the inestimable benefits resulting from the daily use of the bath, as to receive the advantages of instruction in the three R's? If proper facilities for bathing were provided, it would be as easy each day to subject the children to the process of ablution as to put them through their daily course of ordinary school instruction. But, for all classes and all ages, every possible opportunity should be given for indulging in the daily practice of the bath. And the central Government should lead the way in the promotion of this vitally necessary reform. Public baths should be erected throughout the length and breadth of the land, not by a permission, but by a binding enactment. This should be as much a public duty as the construction of town drainage or the making of public roads; and when this duty has been performed, every possible inducement should be offered to the people of all ages and sexes—due and proper provision being made for each—to avail themselves of the advantages which the State had placed within their reach. If the reform which is here earnestly advocated were carried out, untold blessings would be heaped on the heads of the crowded populations of our towns, as the result would be a measure of comfort, health, and happiness, which it is beyond the power of the pen adequately to describe.

THE GATHERER.

Transformation Window-Blinds.

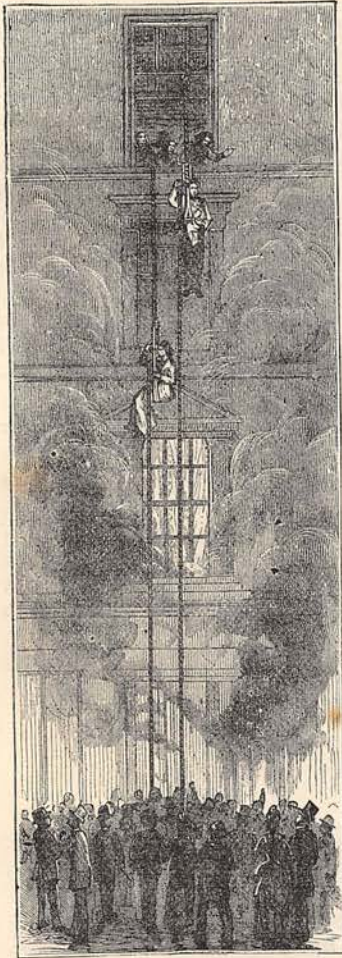
Among recent patents for the improvement of household furniture is one dealing with window-blinds, window-screens, louvres, fire-screens, and other articles of a similar kind. By means of it, the light in a room may be varied in several different ways; it will prove very convenient in suiting the light to the complexion of a sensitive visitor, or maybe in showing off a new dress to the best advantage. A window-screen, for example, is constructed of slips of glass of suitable length, width, and thickness, say eighteen inches by one inch by a quarter of an inch; these are arranged, either vertically or horizontally, at

a proper distance apart, in a frame, so that each slip can be rotated upon its axis. Slips of two different colours are used—say yellow and blue—and these are placed alternately. By this simple means a screen is obtained capable of producing five distinct effects—first, when all the yellow slips are arranged with their flat sides to view, and the blue with their edges to view, the whole screen will present a yellow appearance; secondly, when all the blue slips present their flat sides, and the yellow their edges to view, the whole appearance will be blue; thirdly, when they are all oblique and parallel, the appearance will be stripes of yellow, green, and blue, the green being caused by the

overlapping of the blue and the yellow; fourthly, when all the slips are oblique, but at right angles, or nearly so, the stripes will be blue and yellow only; fifthly, when all the edges are turned to view, no colour will be seen, but only an open space intersected by dark lines. For convenience in turning the slips all the blue are connected together, and all the yellow together, with one knob to turn the blue, and another the yellow.

A Simple Fire-Escape.

A new and very simple apparatus, called the "Patent Spiral Descender," for rescuing people from fire, has been shown to us by the inventor, Mr. James Sinclair. It is simply a rope with a hook at the end of it to hang it from the window-sash, or any heavy furniture



in the room from which the unfortunate occupants are wishing to escape. The "descender" itself is a strong iron "worm" of four grooves, partly enveloped in a sheet of the same metal, so that when the apparatus is put into action the rope resolves itself round these grooves, and the necessary descent is obtained. The persons wishing to escape are supplied with slings or girths, which are fastened round their bodies and secured to the ring at the end of the "descender," and the weight of the individual alone compels the descent, which may by a slight touch of the rope be either slackened or stopped altogether, as the person escaping may desire.

Our illustration will explain the instrument in working order. The one great drawback to this new invention is hooking it, in the first place, at the top of the house; for we must remember that the people to be saved are generally those who could not catch a rope if thrown up to them from below. Invalids also, and children, and exhausted persons would be unable to string themselves to the "descender" without help from firemen. However, this instrument,

unlikely as it is to supersede the well-known fire-escape, may be of decided worth in a great number of cases in rescuing some from a dreadful death, and we are always ready to welcome an ingenious contrivance when the purport is so praiseworthy. This apparatus has also another use, that of letting down parcels and packages from the upper floors of factories and warehouses.

Planting a Colony in Polar Wilds.

The Arctic Regions have for many a day formed the scene of brave deeds, patient efforts, and wonderful successes. Our last attempt to reach the Pole has ended in failure, but few will be inclined to abandon all hope of ultimate success. A novel and daring scheme has been started in the United States—namely, the planting of a colony within 400 miles of the North Pole, for the purpose of traversing at leisure the territory lying between the known world and that coveted spot.

The author of this scheme is Capt. H. W. Howgate, of the United States Signal Service—a thoroughly practical and experienced man of science, and no mere arm-chair dreamer. His idea is to settle a few hardy resolute men at some point near the borders of the Polar Sea, the most favourable one for the purpose being that where the *Discovery* wintered last year. The colony is to consist of at least fifty men, and is to be provided with all necessary supplies for three years: if unsuccessful at the end of that time in accomplishing its great end, it is proposed to re-victual the colony and again leave it. A strong substantial building, in which the party could live comfortably throughout the tedious winter, could be conveyed in pieces to the spot; the seam of good coal found near the *Discovery's* quarters would render the question of fuel a light one; and game in fair quantities, Captain Howgate thinks, would be found. If possible, an advance depôt should be placed at the *Alert's* quarters, thus shortening the road to the Pole by ninety miles. The only use of a vessel would be to take out men and supplies, and then return. The object to be kept constantly in view by the colony would be to take advantage of a favourable opportunity for pushing on to the Pole by means of boats and sledges.

Captain Howgate is of opinion that, in any ordinary season, open water will be found at Markham's farthest point, which will enable boats to get as far north as 85°, where he expects, in accordance with Captain Hall's theory, that land will be found. As to the matter of temperature, Captain Howgate shows that the site of the proposed colony would not be much colder than many inhabited places in the north of Europe, Asia, and America; but here, it has been pointed out, he seems to overlook the fact that it is the long continuance of the intense cold, coupled with the absence of the sun, which tells upon Arctic explorers.

In every other respect his scheme seems much more likely to be successful in attaining the Pole than any other yet proposed.

Double Acrostic.

Their married life began with sharp contentions ;
 Sure never was there such unhappy strife ;
 From morn till night 'twas nothing but dissensions ;
 Yet after, where such happy man and wife ?

A fairy messenger, strange pranks he played
 On those benighted in the forest glade.

Thus cried the sage, who cleverly perceived
 How a fair queen by fraud had been deceived.

Though fierce the contest, loud the clash of arms,
 The victor yields his spoil to beauty's charms.

The world I roamed both far and wide ;
 I was my country's and my sovereign's pride,
 Yet in the grim old Tower friendless died.

Adventures strange and wonderful I met
 By Satyr, Lion, Faun, and Knight beset.

"The lisping infant prattling on his knee,
 Does a' his weary carking cares beguile,
 An' makes him quite forget his labours an' his toil."

The "happy despatch" of the Japanese—
 'Tis strange such a process can mortals please.

Here were our troops surprised ; they knew it, yet they
 stood

Firm as a rock, nor fled their lives to save ;
 The hostile bands recoiled, for here they only found
 Cold steel, warm hearts, an honourable grave.

Gaunt Famine stalked with wolfish eyes,
 Death ravaged far and wide
 This district fair, and blank despair
 Was spread on every side.

Answer to Hidden Quotation on page 319.

"Where, through the long-drawn aisle and fretted vault,
 The pealing anthem swells the note of praise."

Gray's Elegy.

No more Rust.

The chief difficulty connected with the use of iron—whether for the humble pots and pans of the kitchen, or for plates for ships, boilers for engines, or girders for bridges—is its liability to rust. When the surface of the metal is exposed to the action of water or of moist air, it speedily becomes covered with a film of rust. The rusting-process goes on, the coating grows deeper, and at last the iron is completely corroded and worn through.

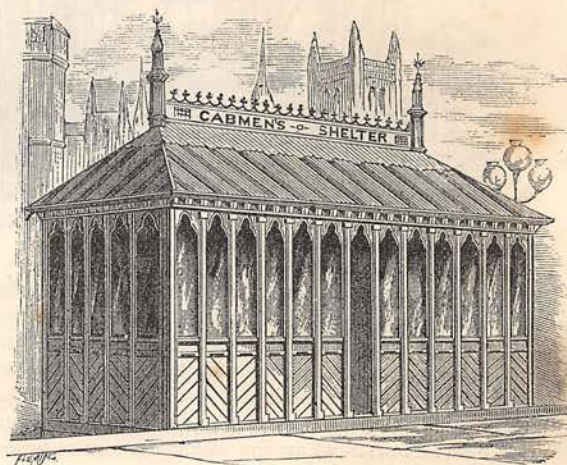
A successful method of preserving iron from rust has at last been discovered by Mr. Barff, Professor of Chemistry to the Royal Academy. The facts he has brought forward, and the specimens he has exhibited, are such, says a contemporary, "as to justify the belief that his discovery will prove of enormous value, and that it will, indeed, render all kinds of ironwork, however much exposed to weather, or to corrosive vapours or liquids, practically indestructible and everlasting." Professor Barff's method consists in coating the iron with its own magnetic oxide. The metal is exposed, at a high temperature, to the action of superheated steam, and becomes covered with a film of the mag-

netic or black oxide, of a thickness which is determined by the degree of temperature and by the length of exposure. The oxide is harder than the original iron, and adheres to it even more firmly than the particles of iron adhere to each other, so that there is a gain, not only in chemical but also in mechanical resistance. The oxidation does not affect the appearance of the surface in any other way than by turning it black.

Experiments have been made with a variety of articles. Bolts, screws, rivets, door-handles, gun-barrels, water-pipes, railing-heads, cast-iron saucepans, and other articles too numerous to mention, have been treated in this way and left on a lawn during six weeks of wet weather. At the end of that time they were taken up absolutely unchanged, and without a speck of rust, except upon parts which had been left, either by design or accident, without protection.

A Grand Cabmen's Shelter.

The cabmen stationed in the Palace Yard, Westminster, are at present in high glee at receiving a substantial present from about eighty benevolent members of both Houses of Parliament. Very recently a handsome shelter was provided for them in the yard of Westminster Palace for their convenience and comfort. This elaborate structure is 22ft. 6in. long, by 9ft. wide ; and the comfort of the occupants has been well studied by the builders, who have introduced a new system of ventilation and light-



ing. Water has been laid on from the nearest plug, and gas has been introduced, which both warms the shelter and gives it a very cheerful aspect by night. The poor cabmen thus find it less unbearable to spend so many hours waiting for the breaking-up of the debates. The plan of building is similar to that of the shelters erected in various parts of the metropolis, with the exceptions just mentioned, and the ornate exterior which is made to correspond with the grand buildings around it.

Steam-Engines on Roads.

When Watt, the inventor of railway engines, was watching his mother's kettle boil, he little thought

that his discoveries of the great power of steam would be so universally applied to the conveniences of man as to command a perfect network of railways throughout our whole civilised world. Yet this is now the case, and we are hearing rumours to the effect that our streets and roads are also to be turned into fields for steam-traffic, to aid even farther in assisting active business men in annihilating both time and space. Omnibuses, we hear it said, are to be served like "stage-coaches," and treated as things of the past; and even horse-power is to be discontinued as the means of moving public conveyances. We all of us know the horrors of a rolling "bus" as it pitches over the stones of our roads, making more noise and less speed; and we also know, at least most of us, to our cost, the headaches consequent upon such heavy travelling. Now tramways have been voted a decided

tons. The steam-pressure is given at 100 lbs., and 20 lbs. of fuel is all that is required for an hour's good work. A condensing apparatus disposes of all exhausted steam.

We understand that thirty of these steam-engines have actually been in use in Paris for the last twelve months, and that there has been no accident of any kind, neither has the ordinary road traffic been disturbed at any time. A trial of Mr. Hughes' car was also made. This represents a single car; the machinery, even the funnel (unlike Messrs. Merryweather's) is entirely boxed up out of sight. There is no need of a "stoker," as sufficient fuel to last three hours can be supplied before starting each journey. There is a seat for the driver behind and before, but the position of the car has to be reversed for the return journey. Another car, made by Mr. J. Grantham, C.E.,



improvement in this respect, as we can judge from the numbers of persons who fill them to overflowing. But the use of steam in the place of horse-power is a still further improvement, and a natural consequence of the extraordinary development of tramway traffic; and the suggestion of such a substitution is worth our consideration, for horses, we are too painfully aware at times, have not the necessary strength for pulling a crowded car up ascending gradients; and besides there is the constantly repeated treading of horses' hoofs between the same rails, which, in addition to the damage done to the roads, is decidedly dangerous to the private conveyances.

A Select Committee of the House of Commons has been appointed to investigate the advisability of adopting this new scheme, and trials of various car-engines have been made. The exhibition of the steam-car patented by Messrs. Merryweather took place at Leytonstone, near London. The engine is hidden from public gaze, being encased in a frame similar in shape to the car itself. The size of the engine is about six feet square, and its weight is three

was also tried. It is a conveyance of three separate divisions (the car and engine being combined). The first part is for first-class passengers; then comes the engine, which, with the exception of the funnel, is out of sight; and at the back is a compartment for the second-class passengers. This engine has the advantage over all the others of a reversing action. A great anxiety was felt during the trial lest the road-steamer should have an unpleasant effect upon the passing horses; but happily no frights or signs of uneasiness were shown by them at any time. The result of the official investigation has proved highly satisfactory, and when the Government sanction has been extended to the use of steam-engines on roads, their adoption throughout the country (with cautionary limits as regards speed, &c.) is beyond question. These steam-trams will be of the greatest use to railway companies, as tram-rails can be connected immediately with the railway system, thus saving the construction of branch lines in small villages. The advantage also of relieving our horses of work too heavy for them to bear will have been gained.