

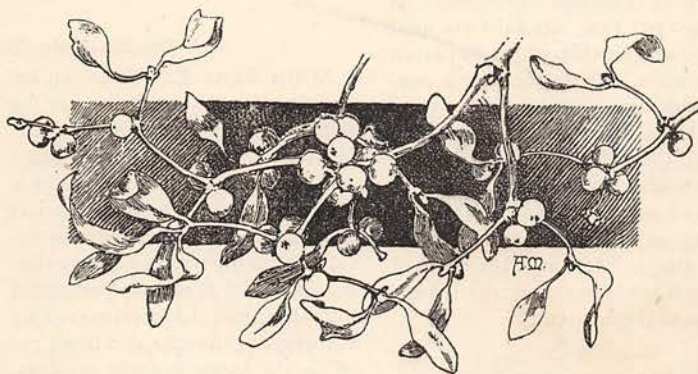
removal. Box, again, we are all of us familiar with ; it can be clipped into any shape, is very hardy, and can readily be moved ; but as a border round our gardens we ought to remember that it affords a wonderful shelter—especially when thick and shrubby—for all those garden pests, such as slugs and snails, and other vermin. Indeed, upon careful examination of your border box, you will find that it almost affords the advantage of a trap for garden vermin, which can thus be the more readily despatched.

In the flower garden, beds—if no bulbs or spring flowers are in—may be well trenched ; or where on account of your bulbs you cannot do this, plunge be-

tween your bulbs a few pots of bright evergreens, such as hardy heaths, aucuba, berberis, and others. This enlivens your garden. A little protection may be necessary in severe frost to tulips or any delicate subjects under ground.

In the greenhouse be on your guard as much or more against damp than against cold. No row of plants should be too crowded. In the rose garden see that the standards are well secured to their sticks, because of the gales.

In the kitchen garden wheel manure in frosty and hard weather, preparatory to a good trenching a little later on.

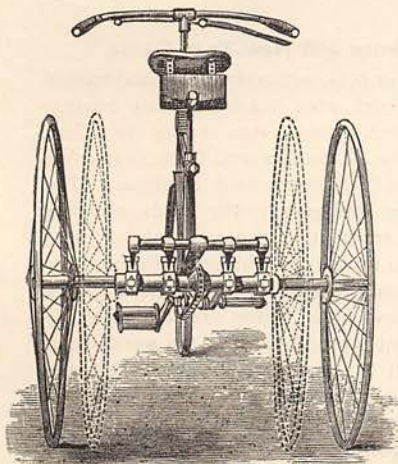


THE GATHERER :

AN ILLUSTRATED RECORD OF INVENTION, DISCOVERY, LITERATURE, AND SCIENCE.

Correspondents are requested, when applying to the Editor for the names and addresses of the persons from whom further particulars respecting the articles in the GATHERER may be obtained, to forward a stamped and addressed envelope for reply, and in the case of inventors submitting specimens for notice, to prepay the carriage. The Editor cannot in any case guarantee absolute certainty of information, nor can he pledge himself to notice every article or work submitted.

A Telescopic Tricycle.



an outer tube, to any desirable extent. The positions of the wheels are fixed by a catch. The dotted lines show the machine brought into a narrow compass.

The tricycle which we illustrate in our woodcut is provided with a telescopic axle, which allows the two hind wheels to approach each other, thus enabling the user to take his machine easily through a narrow doorway. To this end each half of the axle can be screwed up into

Celluvert.

This new material resembles a stiff, highly glazed cardboard, and it can be filed, planed, or otherwise shaped like wood. It can be made either rigid or flexible, and obtained in sheets, tubes, or rods. Being but slightly affected by acids or alkalies, and having besides a great tensile strength, and a high resistance to electricity, it is likely to prove useful in a variety of ways, when it becomes better known.

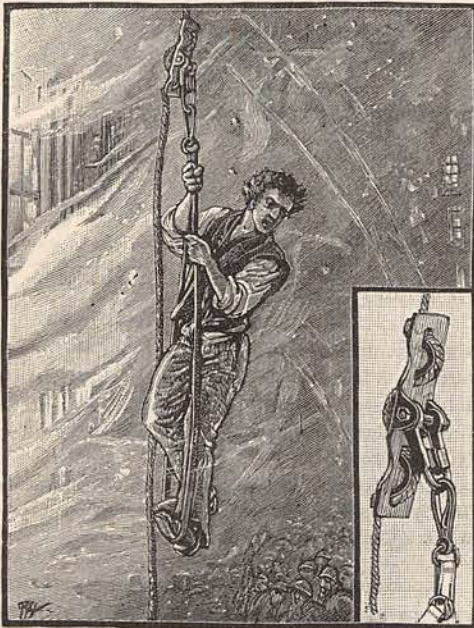
London to Paris by Telephone.

At a recent meeting of the British Association for the Advancement of Science, Mr. W. H. Preece, F.R.S., gave an interesting account of some experiments which had been made by the Post Office with a view to establish telephonic communication between London and Paris. News is now sent by telephone between Paris, Brussels, and Marseilles. There is no theoretical reason why one should not be able to speak across the Channel, for the submarine cable from Dover to Calais is only 21 miles long, and induction is therefore not powerful enough to destroy the vocal currents. The entire distance is 275 miles by wire,

namely, 74 miles of overhead wire from London to Dover, the cable across the Straits, and 180 miles of overhead wire from Calais to Paris. By making a circuit from Worcester through London to Baldock, on the Great Northern line, Mr. Preece had imitated the conditions of the London to Paris line, and the results were such as to put an end to any doubts of the practicability of telephonic communication between the British and the French capitals.

A Lode of Uranium.

A century ago the metal uranium was discovered by Klaproth, who isolated it from the yellow oxide called pitch-blende. It has hitherto remained a rare metal, its market price being £2,400 per ton. Its salts are used industrially, especially the sesquioxide, which imparts a greenish-yellow tinge to glass. Quite recently a continuous lode of sesquioxide ore, containing from 12 to 30 per cent. of the metal, was discovered in the Union Mine, Grampound Road, Cornwall. This is the first lode which has yet been found in the world, and it is expected that uranium will now be used as a substitute for gold in electro-plating, as with copper and platinum it forms two gold-like alloys. It may also be used for electrical purposes, as it possesses a peculiarly high resistance to the passage of the current.



A New Fire-Escape.

The fire-escape which we illustrate is so simple in its action as to require little explanation. It consists of a metal plate through which a rope is passed, and which is capable of sliding down the rope when it is weighted. A chair or "stirrup" for the person escaping from the building is attached to the plate by belting, as shown. The rope is, of course, fastened to the burning building, and the person, taking his

place in the "stirrup," can slip down the rope to the ground; the friction acting as a brake to prevent a too rapid descent. More than one trip can be made by running the slider back to its original position on the rope.

A Warp-Weaver.

At a recent meeting of the Institution of Mechanical Engineers, Mr. Arthur Paget read a paper on an interesting weaving machine of his invention. The weaver makes a great variety of cloths without the employment of a weft, that is to say, the web is prepared from the warp only. Shawls so fine as to pass through a finger-ring, as well as coarse towels, can be made by the weaver without any difficulty.

A Double-Note Siren.

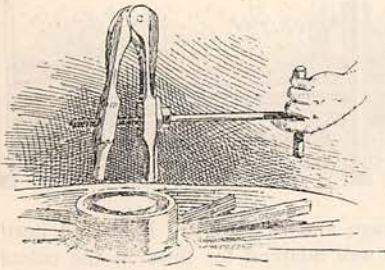
At the Paris Exhibition an interesting double-toned siren or fog signal, working by compressed air, was shown by a well-known foreign firm of engineers. The apparatus is illustrated herewith, and consists essentially of a bronze cylinder revolving rapidly within a fixed cylinder. Both of these are perforated with slots, and the compressed air in traversing the slots, and being cut off as the inner cylinder revolves, gives rise to a musical note of great intensity. The issue of air and its pressure are regulated, by simple means, so as to vary the sounds emitted. The apparatus shown is intended for a French harbour. Sirens of compressed air are, generally speaking, preferable to those working by steam, because they can always be available for use, and the air-compressing machinery may be stationed at a considerable distance.



Some Christmas and New Year Cards.

Gloves, fans, flower-pots, well-worn boots and babies' shoes, handboxes, and even tea-cosies and boxing-gloves, all have been pressed into service to afford novel designs for the Christmas and New Year cards published by Messrs. Hildesheimer & Faulkner. The fans are beautifully embossed; the boots and the handboxes open to reveal quaint designs and verses; the flower-pots hide timid little chickens, and the tea-cosies shelter not only a tea-pot but a little dog or a kitten. Cards in less novel forms are made equally beautiful by excellent reproductions of the work of our late lamented friend Mr. Ernest Wilson (whose drawings in our own pages must be familiar to all readers of the Magazine, and whose tragic death must be fresh in their memory), and other artists of equal merit. All alike are good, and it is difficult to make selection from so many beautiful works. "The Shepherd's Daffodil," by Michael Drayton, is coupled with other similar poems in a very tasteful little volume, charmingly

illustrated by Mr. Tom Lloyd, R.W.S., and Mr. Ernest Wilson, while Mr. W. Langley supplies the illustrations to another book devoted to "In the Harbour," by the ever-popular Mr. G. R. Sims. "Gems from Ireland" is a selection of poems accompanied by a series of very beautiful sketches of Irish scenery by Miss Marian Croft. A smaller booklet is given up to Lever's "Widow Malone," illustrated by Mr. Yeend King, and others such as "Little Bell" are addressed more particularly to children, whom they are sure to please. Messrs. Von Portheim & Co. have sent us a series of booklets, containing sketches of "Sea," "River," "Mountain," and "Country" respectively, tastefully illustrated both in colour and monochrome, and accompanied by selected and original verses. The "Pilot" is another booklet in the same style, and issued by the same publishers, but it is wholly given up to a single story, prettily told in verse by Mr. E. Nesbit. The "Flower" and "Leaf" series, also published by Messrs. Von Portheim, consist of booklets stamped in the shape of the flowers or leaves whose names they bear, and unfolding to show pretty verses and coloured illustrations. The idea is a good one, well executed. The cards issued by Messrs. Marion & Co. display much originality of design, notably in the case of a folding card whose face is nearly covered by a stamped ivy-leaf that may be lifted to show a pretty view beneath it. Another card is quaintly folded to half conceal a delicately hand-painted spray of honeysuckle, while in others beautifully embossed sprigs of mistletoe, and clasped hands, are accompanied by well-chosen motto-greetings.



A Handy Cap Wrench.

The annexed engraving shows a new cap wrench for the wheels of vehicles, and the mode of using it. With this appliance farmers are able to unscrew various sizes of caps by adjusting its grip, and thus the need of having several wrenches to suit different wheels is avoided.

Some Novelties for Ladies.

A new suspender for china, when used for decorative purposes, has recently been patented. The novelty consists in the use of a strong elastic band, which passes through the rings of two hooks that clutch the plate, or other object, on either side, and are held in position by the tension of the elastic. Another ring is so fitted to the band behind the plate as to serve for attaching it to the nail in the wall. Passing from the drawing-room to the kitchen, we may notice in this connection that a new form of

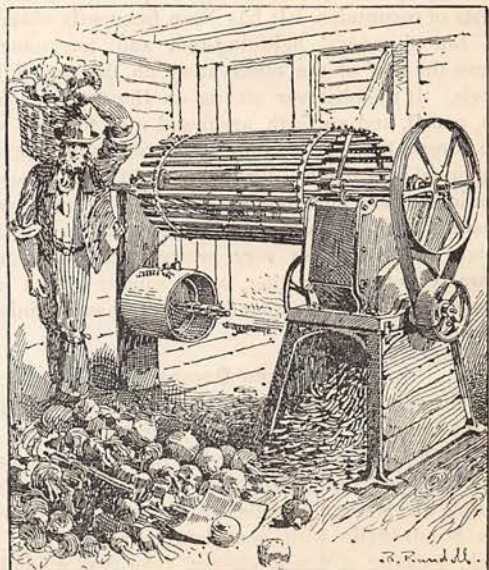
preserved milk has lately been introduced into this country, the milk being reduced by a chemical process to a powder, which is capable of easy transformation into a liquid form by the addition of a little boiling water. The advantages of this preparation are obvious, and will perhaps be appreciated even more in a further development of the method, in which chocolate is also added, when all that is necessary to make a good cup of chocolate is to treat a given quantity of the powder with boiling water. In the nursery another novelty which has lately been brought before us will perhaps be equally welcome. It consists of a feeding tray, for the use of little children at table. The tray is large enough to accommodate a child's plate, together with his cup and spoon, and it is so shaped that over the bevel of the table there projects for about an inch and a half a trough running the whole length of the tray, and calculated to catch any droppings from the spoon, which might, otherwise injure the child's clothes or the carpet.

A New Windmill.

In a recent GATHERER we gave an account of a new wind motor, and our attention has since been called to another, which has been brought out at Penrith. In this also the shaft is vertical, and has four arms fitted to its top, each with a sail or float attached in such a manner as to open when coming round against the wind, and shut in the other position. The mill requires no adjusting to face the wind, no matter what direction it blows in, and the power is taken direct from the upright shaft.

A Root Cleaner and Slicer.

The implement which we illustrate is designed to clean, or slice, or pulp roots for live stock on farms. It consists of an open drum of wrought-iron, into which the roots are thrown, and as it revolves the dirt is cleaned away by the tubers rubbing on each



other. The roots are then delivered into a slicing frame provided with a cutting barrel, and there sliced up. By changing the knives the slices can be regulated in size. Moreover, the cutting barrel can be removed and another one substituted, which pulps the roots. Thus the machine not only cleans but slices and pulps the turnips as required.

A Hand-Rest for Artists.



Our figure illustrates a new rest for the hand of artists and art-students, devised by Mr. Satchwell. It is made of oak, walnut, or ebony, according to price, and fitted with nickel-silver. The rest is twenty-four inches long, and slides easily up and down the drawing-board or canvas. By its aid, an artist can work over any part of the board without touching the canvas or paper.

St. Elmo's Fire on Ben Nevis.

St. Elmo's Fire is a natural discharge of electricity from points on the surface of the earth, as the masts and rigging of ships, the foliage of pine-trees, and the crests of mountains. It has been frequently observed on the chimneys' lightning-rod, and anemometers above the roof of the observatory on the top of Ben Nevis. If the observer stands on the roof, his hair, hat, pencil, and so forth, are found also to glow with the auroral fire. If he raises his stick aloft, the end is pointed with flame. Beyond a slight tingling sensation in his head and hands, he suffers no annoyance. There is a feeble hissing heard during these displays, which are sometimes very pretty; and the stormy character of the weather, with squally winds and clouds of snow-drift, rather heightens than diminishes the weird effect.

Bitumen Bombs.

A curious phenomenon is reported by the United States Consul at Maracaibo, in Venezuela. Near the Rio de Oro, at the base of the Sierra of the Colombian frontier, there is a horizontal cavern, which from time to time ejects huge globules of bitumen, that explode like bomb-shells with considerable noise; and the pitch, forming a black glacier, runs into a kind of

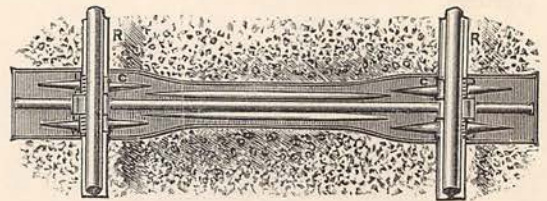
pool or lake near the river-bank. The territory, bounded by the rivers Zulia and Catatumbo and the Cordillera, is rich in deposits and flows of asphalt and petroleum. At a distance of about seven kilometres from the confluence of the Tara and Sardinete there is a sand-mound from 25 to 30 feet high, and having an area of 8,000 square feet, on the surface of which are many little holes or vents which eject petroleum and hot water, with a noise like steamers "blowing off." The place is called "Infernito," and for a distance round the soil is impregnated with petroleum.

Carrier Pigeons and Balloons.

According to the *Novoe Vremya* of Russia, the carrier pigeon has been put to a singular use in carrying photographs taken from a balloon to their homes on the ground below. The first trial was made from the cupola of the Cathedral of Isaac, St. Petersburg, and the subject photographed was the Winter Palace. The plates were packed in envelopes impervious to light, and tied to the feet of the pigeons, which carried them to their station at Voekovo.

A New Steel Sleeper.

The railway sleeper which we illustrate is made of pressed steel, with convex corrugations in the middle to prevent it from buckling. The "chairs," C, C, are also strengthened with corrugations at the back. A section of the rails, R, R, is shown mounted in these chairs. The sleepers are rivetless, which is an



advantage, and as they are light and portable, they appear well adapted for lines in the colonies where timber is scarce.

Tuna Fruit.

The fruit of the opuntia, or *tuna*, a Mexican cactus, is now spreading into the Southern United States and being improved by cultivation. The plant requires little care, and thrives on almost any soil, while at the same time it will endure a considerable degree of cold. The prickles are removed from the fruit, and the pulp exposed. Its flavour resembles that of a water-melon spiced with strawberry, and it forms an agreeable adjunct to the breakfast-table.

The Proposed Channel Bridge.

At a recent meeting of the Iron and Steel Institute, held in Paris, M. Henri Schneider read a paper on a proposed bridge across the Channel between Folkestone and Cape Grisnez—the shallowest part of the water, which is there not over 30 fathoms deep. The total length of the viaduct would be 24½ miles;

it would comprise a million tons of steel, cost 34 millions of pounds, and be finished in ten years. The piers would be constructed of solid masonry up to above the high-water level, and a steel column, 130 to 140 feet high, would rise above them to support the main girders of the bridge. The mast-room for ships would be 177 feet. Simple, unlatticed, trussed girders would be adopted, and the "permanent way" for the trains would be 236 feet above low-water level. The greatest width of the bridge would be over 82 feet. Sir John Fowler, the engineer of the Forth Bridge, is connected with the project, which, however, is still "a castle in the air."

A Thatching Machine.

A machine for covering stacks of hay or corn with thatch, as soon as the stack is built, has been successfully introduced, and as it can be worked by labourers and rapidly performs its duties, it proves a

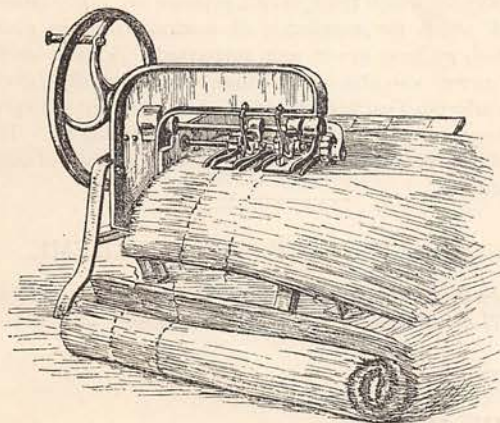


FIG. 1.

great convenience to farmers. Fig. 1 shows one of the machines engaged in making the rolls of thatch, and Fig. 2 illustrates how these are applied to cover a stack. A machine of this description, driven by

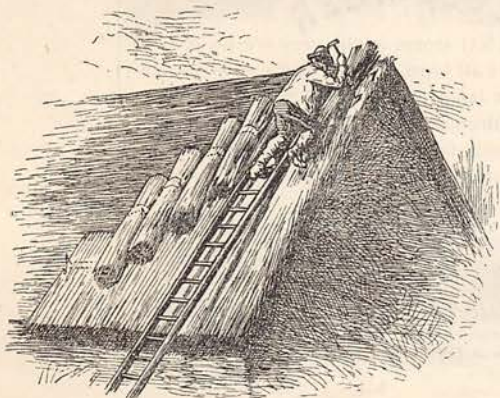


FIG. 2.

hand, is capable of producing from 200 to 1,000 square feet of thatching per hour, depending upon the length of the straw, grass, or rushes which are employed.

According to one account, three stacks can be covered in this way as quickly as one by the older method.

Seven New Games for Children.

New card games for children that do not involve constant shouting on the part of the players are always acceptable, so we are glad to welcome a set of cards designed by Mr. F. J. Cross, with which no less than seven new games may be played. "Quick, Tell!" and "Pretty Pairs" are capable of being played by even very little children, and "Kit the Counter" might help them in learning to count quickly and correctly. "Jovial Joiners" and "Busy Little Builders" ought to amuse older children, or those who are no longer to be classed under that head. There is a fund of amusement for the long evenings of the holidays in this original set of cards, which is published by Messrs. Dean & Co. under the title of "Quick, Tell!"

Mr. Stevenson's Latest Story.

To say that a story is by Mr. R. L. Stevenson, is synonymous with saying that it is full of incident, but the "Master of Ballantrae" (Cassell) is something more than this. The incident is fresh, and the characters singularly strong. The cunning of the master, the sufferings of his brother, and the honest fidelity of MacKellar, are all cleverly brought out in the course of the story, whose scene is mainly laid in the ancestral Scotch home of the master's father, Lord Durrisddeer. To give an inkling of the plot would be to spoil the story for our readers, but we cannot help referring with a word of admiration to the very powerful, though somewhat ghastly, scene with which the book closes; a scene which, for keen dramatic interest, we have rarely seen equalled.

A Typical Englishman.

This is what John Davis, the navigator, undoubtedly was, as all will say who read Mr. Markham's biography of him, with which Messrs. G. Philip & Son have inaugurated their series on "The World's Great Explorers." The book is admirably calculated, not only to give us the salient points in the hero's life, but also to show us exactly what his work amounted to, and how much those who have come after him have benefited by and improved upon it. The work is one that we should like to see in the hands of all right-thinking boys.

An Old Favourite in a New Dress.

In many respects the wittiest, perhaps the "Jackdaw of Rheims" is also the most popular of the "Ingoldsby Legends." Small wonder, then, that it has been selected for special illustration by Lucius Rossi, who has provided us with a series of illustrations that are worthy of the matchless humour of the poem. Almost every line of the poem finds an illustration in this work; and as the illustrations are reproduced in monochrome, it ought to form a most acceptable Christmas gift. The quality of the reproduction reflects great credit on the publishers, Messrs. Raphael Tuck & Sons. This same beauty of reproduction

characterises the varied Christmas and New Year cards issued by this firm. The foremost place must be given to the copies of world-famed pictures by the old masters, such as Correggio's "Nativity," from Dresden, and the Sistine Raphael. Novelty of design is shown in the shape of hat-boxes, yule logs, cheeses, and even birds, all of which open to reveal dainty and appropriate verses and wishes. Framed pictures, too, whose miniature mouldings and mounts are perfect in every detail, and the ever-popular bells and horse-shoes are pressed into the service with excellent results. Mr. G. R. Sims's pretty verses on "Sweet Devonshire" are tastefully presented in a daintily covered little booklet, that finds a companion work in Mr. Sidney Morris's "A Yule of Cheer." All tastes and all pockets are to be suited from Messrs. Raphael Tuck's bountiful stores.

Old Stories for Young Readers.

Under the title of "The Blue Fairy Book" (Longmans), Mr. Andrew Lang has collected the most popular of the old fairy tales, which were the delight of children of former years. It is pleasant to meet again, and in such an attractive form, the friends of our nursery days; and we cannot do better, now that we have the opportunity of doing so, than pass on to our successors these old-world fairy tales that seemed so real to us in the years that are gone.

Christmas Presents.

Soon all the world will be buying Christmas presents and choosing seasonable mementoes and greetings.

And it does not seem that the old difficulty of selection will be any less than in former years. Messrs. Eyre & Spottiswoode have issued a number of colour books and booklets, very suitable for such a purpose, and among them we must assign the place of honour to the *Édition de luxe* of "The Jackdaw of Rheims," a veritable masterpiece of humorous art, whose pages are exquisitely designed. The illustrations are by Mr. Ernest M. Jessop, whose carefully detailed work is admirably displayed on the broad pages of the book, that render it suitable for a present that shall long survive to remind the recipient of its donor. The next place must undoubtedly be given to the dainty little volume of "Children's Prayers," illustrated by Miss Jane M. Dealy and Mr. F. M. Marriott. Space would fail us to describe all the beautiful little booklets, most of them addressed specially to young readers, but the same careful work and beauty of design will be found in all. More lasting and valuable presents are the Bibles for which the Queen's printers are justly famed, and which for excellence of workmanship, in every detail, we have never seen surpassed. A more useful or more valuable Bible than the tastefully bound "Variorum Teacher's Bible," or one better fitted to give a teacher substantial aid, we cannot imagine. The India paper edition of this work is a marvel of compactness.

OUR LITERARY PRIZE SCHEME.

Full particulars of our Literary Prize Scheme will be announced in our next number.

PICTURES OF THE MONTHS.

