

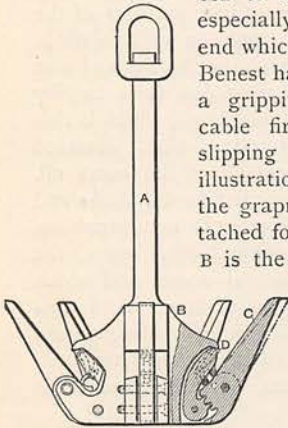
## THE GATHERER :

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

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### A Gripping Grapnel.

Submarine cables are apt to slip off the flukes of the grapnel while being hauled up from the bottom of the sea to the surface for repair, more especially if it is a loose or broken end which is being lifted. Hence Mr. Benest has introduced a grapnel with a gripping fluke, which holds the cable firmly, and prevents it from slipping away. It is shown in the illustration, where A is the shank of the grapnel to which the rope is attached for lowering it into the water; B is the boss, and C is one of the flukes, which are all hinged after the manner of Jamieson's grapnel, so as to bend when they come in contact with a submarine rock. But besides this movable fluke



there is a second movable jaw, D, so contrived that when the cable slips down to the base of the fluke, C, which catches it, the other jaw, D, presses upon it, and holds it there until the grapnel is hauled to the surface, and the cable delivered from it.

### A New Egg-Boiler.

An ingenious device has just been patented, which combines with the old-fashioned sand-glass an automatic arrangement for sounding an alarm when the egg is cooked, and at the same time lifting it out of the water. By means of a simple counterpoise attached to the sand-glass, and capable of adjustment for two, three, or four minutes, the glass is made to swing round on its pivot at the expiration of the appointed time. This brings the hammer into contact with the bell and gives the alarm to the cook. And the bell, being connected with the trigger that holds down the tray in which the eggs are contained, releases this trigger when it is struck, and enables the spring below the tray to lift it out of the water with the eggs. By the way, could not some development of this device be adapted for the use of chairmen and presidents of debates, as an automatic and absolutely impartial regulator and recorder of the time allowed each speaker?

### A Self-Locking Easel-Peg.

A new peg for black-board easels has recently been patented, which deserves the attention of all teachers and school managers, especially in view of the recent judgment in the action *Crisp v. Thomas*, tried before Mr. Justice Charles in April. The easel-peg is

provided with a spring catch similar to the catch of an umbrella, so that when it is pushed through the hole of the easel-frame it is automatically secured, and the danger of the black-board being knocked off the easel is consequently very slight indeed. This is just one of those inventions which are so useful, and whose advantages are so apparent, that nobody can understand how it is it has not been introduced before.

### The Insumgraph.

None of the time-checks in use identify the person making the signal, and hence they can be misused. Mr. B. Warwick has therefore introduced his "Insumgraph," which is based on the signature of the person who makes the signal. It consists of a desk, having



an opening at which a sheet of paper sufficient to receive the signature appears. The person writes his name on it, and passes into the works or hall as the case may be. The paper travels by clockwork, and the time of signature is recorded. An ordinary office clock can be adapted to the apparatus, which works by electricity. At certain times of the day currents established by the clock close the signature arrangement, so that late workmen cannot register their entry, or at least can only do so in the late list. The apparatus is so contrived that it cannot be tampered with, and a fresh sheet of paper is only required once a week or even less frequently.



**A Mechanical Reporter.**

The shorthand type-writer of Mr. G. K. Anderson is illustrated in Fig. 1. It is designed for the use of reporters in taking down speeches or lectures, and

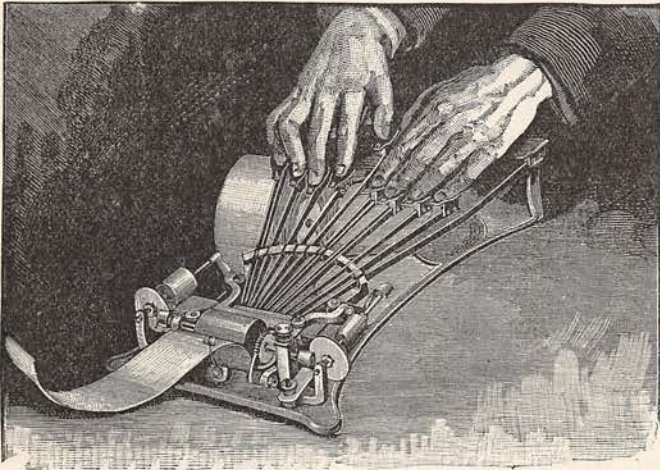


FIG. 1.

made purposely light for easy transport. The keys are about a dozen in number, and are played with both hands. The record is printed on travelling paper, as in the ordinary Stock Exchange telegraph. Part of the keys print the single letters of the alphabet, and the rest certain arbitrary combinations of these. An operator of ordinary skill can, it is said, register 100 words a minute after six weeks' practice with the machine, while from 200 to 250 words can be printed with the same number of strokes necessary in printing 40 to 50 words by the ordinary type-writer. While upon this subject, we may also mention the new Fitch type-writer, which is shown in Fig. 2. It has 26 keys of hard rubber, which register 78 letters and signs. The types are of hard rubber, and ink themselves in passing to the paper. The rest of the instrument is made of steel, and worn-out parts can be replaced with new ones. The types print directly on the paper, in full view, and any correction can at once be made.

**A Group of Novelties for Ladies.**

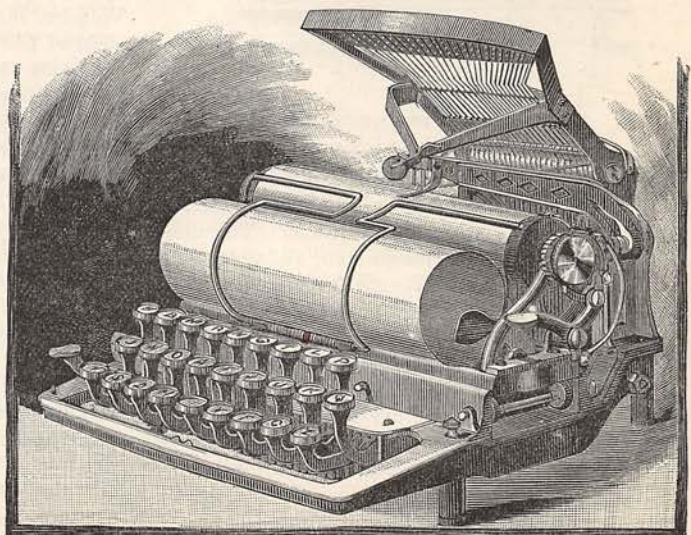
Inventors have been busy of late on behalf of ladies, and we have quite a long list of novelties to chronicle for their special benefit. First comes an ingenious little device called a "Sleeve-holder," intended to facilitate the putting on of sleeved jackets over dresses whose sleeves would otherwise be caught in the jacket-lining, to the great discomfort of their wearers and with disastrous results to the sleeves themselves. This device consists of a pair of grippers which readily close

over the end of the dress-sleeve and are held there by a simple spring. The spring being closed, and a ring at the other end of the attachment slipped over the finger, the dress-sleeve is quickly drawn through that of the jacket without any creasing or inconvenience. The sleeve-holder may then be removed and transferred to the other arm.

Another novelty in ladies' dress fittings is the "Chic" dress-suspender, which consists of three steels to be fixed horizontally between the foundation of the skirt and the dress material. The top steel and the middle one, which is to be set some four or five inches below it, are provided with hooks, on to which wide rings secured to the middle and bottom steels may be hung, thus raising the skirt at the back to either of two heights as may be required. The rings and hooks are not at all bulky and do not at all disfigure a dress, yet they may be quite readily felt through the material and adjusted with the greatest ease.

Another simple dress-suspender, working without steels, has been patented by Mr. Harry Caslon. It consists of a single band of webbing, one end of which is sewn to the skirt-band, while the other is fastened by a ring to a number of shorter bands that are secured to as many different folds of the skirt as possible. Near the top of the main band is an open buckle, which automatically holds the band by means of metal eyelets, and thus affords a ready method of raising the skirt two, four, or six inches as may be required. It is easily adjusted with one hand, strong, and so simple that it cannot get out of order.

Ladies who travel much will be glad to hear that strong light trunks for their use are being made of Spanish cane, a material at once lighter and stronger



A MECHANICAL REPORTER.—FIG. 2.



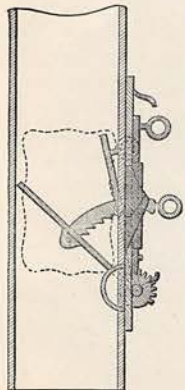
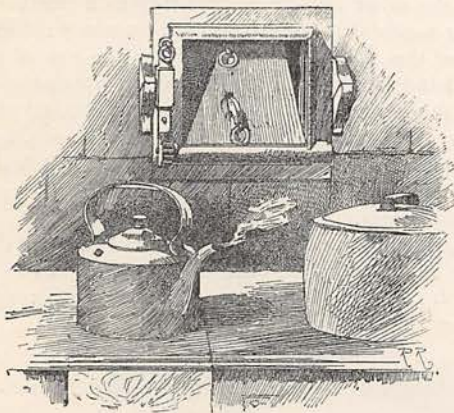
than the popular wicker-work. As these trunks are thoroughly waterproof, they certainly merit a trial.

Housewives ought to welcome the "Ironer's Friend" which has just been patented by a Birkenhead firm, for it is at once simple and useful. It consists of a long, shallow, level tray shaped somewhat like an old-fashioned knife-board, but having a baize-covered platform or cushion at its squared end. Into this tray is put bath-brick or emery powder, and the irons may then be quickly cleaned and polished on this powder, any surplus being brushed off on the baize cushion.

All who have to deal with sick and delicate children will be pleased to hear of a new preparation of extract of malt, made up in the form of sweetmeats under the title of "Maltex Tablets." The strengthening and nutritious qualities of extract of malt are well known, but it is not to be wondered at that little patients should sometimes tire of the purely medicinal preparation, which they are hardly likely to do of this new and more attractive one.

Lastly we would call attention to a novelty which ought to prove popular at this season of *al fresco* entertainments. This is a combination, in one readily carried ball, of tea, sugar, and milk, which only requires the addition of boiling water to produce a good cup of tea. For camp and pic-nic use this ought to be very serviceable.

A New Damper for Stoves.

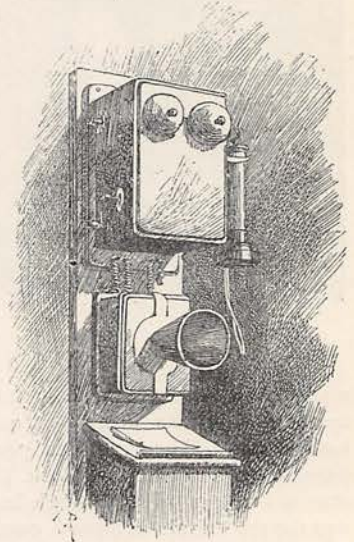


Our illustration shows a new damper and ventilator for the flues of large cooking-ranges, which has recently been patented by Mr. J. Keith, Assoc. M.I.C.E. The difficulty in the damping and ventilating of large ranges, hitherto, has been that it was impossible to ventilate one flue without interfering with the draught in the others. In this new attachment, however, as will be seen from the illustration, two flaps are provided, working in the same frame; the inner one, or damper proper, working by means of a ratchet running through the outer flap or ventilator. The position of the damper in the flue is

regulated by the teeth of the ratchet, and the ventilator is held at any required angle by means of a ratchet wheel at the side of the hinge on which it works. It will be seen that this arrangement will permit of the opening of the ventilating door, even while the damper is closed or partially closed. But further, as the whole framework may be lifted out with the greatest ease, a ready means is afforded of cleaning the flue either above or below the damper. This invention is a marvel of simplicity and thoroughness.

The Audio-Telephone.

The mouthpiece shown in the lower part of our figure is designed to enable persons using the telephone to carry on a conversation without raising the voice above its ordinary tone. It is simply a truncated cone clamped over the ordinary mouth-piece of a Blake transmitter. An indiarubber ring or washer is inserted between it and the wooden case of the transmitter to prevent any loss of sound. The cone is a double one, and the outer shell is perforated with holes. The latter serves as a guard or protector to the inner cone.



The Cost of Railway Travelling.

Some curious and interesting figures were brought out in the course of a paper recently read before the Society of Arts by Mr. G. Findlay, of the North-Western Railway Company. Taking the returns of eight of the English railway companies, Mr. Findlay compares the percentage of working expenses with the gross receipts per class, and he shows that the mean proportion was only 53 per cent. in 1888, the last year for which full details are procurable. But, taking the average of the eight companies, for every £100 received for first-class traffic, £102 has to be spent in working expenses. Indeed, only three of the eight companies show any profit on first-class traffic, despite the high fares; and on the Sheffield line no less than £211 has to be expended in return for every £100 received from first-class passengers. Taking the average for the eight companies again, second-class traffic yields £100 for every £69 expended in working charges; and the third-class produces its £100 in return for the moderate expenditure of £41.

For the Protection of Restless Children.

All mothers and nurses know the habit that children have of throwing off the bed-clothes in their



sleep, particularly when the little ones are feverish or restless. And the dangers which this practice involves are equally well known. To obviate this risk a Dumbarton firm have brought out a new attachment which they call "Child Protectors." It consists of a pair of light chains coiled in two boxes to be fixed at either side of the bed-head. These chains are coiled automatically by springs, sufficiently strong to keep the bed-clothes (to which their loose ends are attached by loops of tape) in position, but not too strong to admit of free movement on the part of the little sleepers. In children's hospitals we should think these protectors would prove especially useful.

#### Useful to Gentlemen.

Moustache-cups are not always procurable, though by no means uncommon, so gentlemen who find their use advisable will be glad to hear that a detachable moustache-plate, which may be readily fitted to any cup of ordinary size, is now to be had. In shape it is very like the plate fitted to moustache-cups, and answers its purpose admirably. As it may be carried in the vest pocket it is peculiarly adapted for travellers. Another novelty appealing particularly to "the nobler sex" is found in some pretty pipe-racks which have just been brought out by a Yorkshire inventor. They consist of plush-covered frames fitted with plated racks that will hold the pipes either bowl or stem upwards. This last is a great desideratum, as all lovers of tobacco know.

#### Dry Meat Diet.

Scurvy is usually supposed to be due to the excessive use of a salt diet; and a letter from Dr. Good, professor of clinical surgery in the Medical College of Manitoba, recently published in the *Lancet*, affords a corroboration of the truth of this view. He states that servants of the Hudson Bay Company on the distant posts of the Athabasca Lake and Mackenzie River habitually live for years on a meat or a fish diet, without vegetables, and sometimes with but a pound of flour for the Christmas pudding once a year. Scurvy is unknown amongst them; but on the other hand, the servants of the Company at York Fort on Hudson's Bay are liable to attacks of scurvy in winter and spring, a fact which points to the constant use of salted goose-meat as the cause of the malady. Fish diet is found still more wholesome than beef in the far north-western posts.

#### Some New Labels.

At this season, when all the world and his wife and family are travelling, new luggage labels have more than usual interest. One of the most recent novelties in this direction is a book of well-named "Savetime" labels, which are ready gummed and show on each a large and distinctive letter or figure on a boldly coloured background. Each book contains thirty-two labels, eight of each of four letters or figures, so that all the luggage of any ordinary party may be plainly labelled alike. Similarly marked counterfoils are provided in the book, and one of these may be given to

the porter or servant on arrival at your destination, and all your luggage may thus be quickly collected.

Another novelty, particularly useful where the traveller is moving on from place to place, is the tablet-label, which consists of twelve labels mounted on a stout card, and only requiring the top label to be torn off before it is again ready for use. Most travellers have experienced the difficulty of not being able to procure a new label at the time it was wanted, and will be able to appreciate the advantage of this tablet.

To tradesmen, rather than to travellers, a third new label should prove useful, for it comprises both label and envelope, and serves at once to direct and identify the package to which it is attached, and convey the invoice for its contents. Of course this combined label and envelope may not be used on packages to be sent by book post, but for parcel post or rail and road deliveries it seems likely to prove very handy.

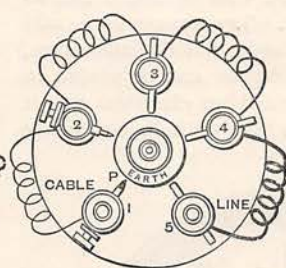


FIG. 1.

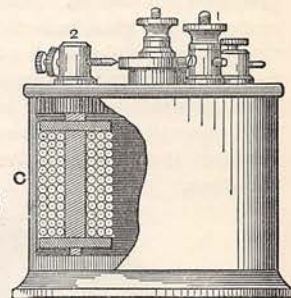


FIG. 2.

#### A New Lightning-Guard.

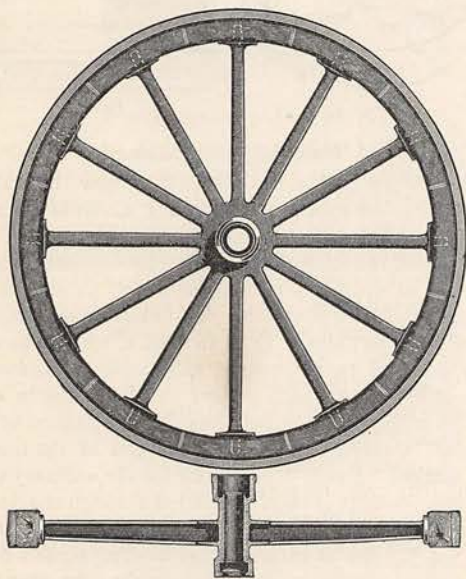
Dr. Oliver Lodge has devised a new lightning-guard for telegraphs and telephones, which is perhaps the most efficient yet invented. It is based on the principle of reducing the discharge by degrees through a series of sparking points connected to the earth, with coils of wire possessing self-induction or "impedance" between them. Thus, in Fig. 1, which shows a form adapted to preserve a submarine cable from a flash of lightning which strikes the land line in connection with it, the end of the cable is attached to the terminal marked "cable," and the end of the line to that marked "line." The circuit for the ordinary telegraphing current is then completed through the intervening four coils of wire, C, and the binding screws, 1, 2, 3, 4, 5. But at each of these binding screws there is a sparking point, P, which is brought very near to a central stud of metal, marked "earth," and in electrical connection with the ground. The ordinary telegraphing current does not discharge itself by these points; but the intenser lightning currents do, the more especially as they are "impeded" in their progress from terminals 1 to 5 by the wires C. Fig. 2 represents the apparatus as actually made, with the coils shown in the interior of the box at C.

#### The Telethermometer.

It will be remembered that the late Sir William Siemens devised a thermometer for measuring the heat of furnaces by exposing a metal wire to the heat



while an electric current was traversing it, and estimating the temperature by the variation of electric resistance in the wire which it produced. Metals increase in resistance with a rise of temperature, whereas carbon filaments decrease in the same manner. Dr. Puluj, of Prague, has therefore taken advantage of their contrary properties to gain sensitiveness in the electric thermometer. He balances the resistance of a filament of carbon against that of an iron wire in the arrangement known as the Wheatstone Bridge for measuring electrical resistances. When these opposed bodies are subjected to a change of temperature, their resistances vary in contrary directions, one becoming greater, while the other grows smaller, and the balance established between them is upset. The deflection of the galvanometer of the bridge indicates the divergence from equilibrium, and hence the temperature which has produced the change. Both the carbon and iron are enclosed in a glass bulb filled with hydrogen gas, so that neither can be oxidised. The apparatus is said to be remarkably sensitive; and it has this advantage, that the reading part or indicator can be placed in any convenient place, provided an electrical circuit connects it to the sensitive part or bulb containing the wires.



A New Road Wheel.

The spokes and nave of the wheel shown in the engraving are of steel, cast in one piece, and the wooden felloe is attached to sole-plates cast on the ends of the spokes. An iron hoop is then shrunk over the felloes in the usual way. It is claimed for this wheel, of which an axial section and side elevation are represented, that the expansion and contraction due to heating and cooling do not produce the loose joints observed in modern wheels after dry weather. It is also very strong, and no heavier than an ordinary wooden wheel of the same size.

#### A New Strainer.

A new strainer for decanting the contents of bottles has just been patented. It consists of a gauze tube of some three or four inches in length, headed by a rubber cone and a lipped metal funnel. The tube is pushed into the bottle-neck until the cone makes a tight joint, when the liquid may be poured through the tube and any sediment will be caught in the gauze. The strainer should be rinsed when the bottle is empty, and it is then ready for use again.

#### A Cycle Road-Sketcher.

Road-sketching is at present done by military engineers on horseback; but Lieut.-Colonel Marshall has devised an apparatus which enables the work to be done on a cycle. The invention is provisionally protected by patent, and we may not describe it fully, but it consists essentially of a drawing-board or tablet fixed before the cyclist, and fitted with a travelling pencil and other devices which enable him to make the sketch in accordance with the directions given. A road 16½ miles long has been sketched and "contoured" by it in four hours, or about half the time required for sketching on horseback.

#### A New Treasure for Children

Is to be found in "The New 'Little Folks' Painting Book," just issued by Messrs. Cassell. It is full of outline pictures to be coloured by little fingers, and ought to prove a useful ally to worried mothers in the dread event of any wet days keeping the little ones to the house during their holidays. As there are a number of prizes offered for the best specimens of the book coloured by children, there is every inducement to them to take pains. The midsummer volume of *Little Folks* opens with a story by Mr. Clark Russell, and contains also another serial story for young readers, which runs through the volume, as well as quite a host of complete stories. The volume, with its plentiful illustrations and bright pages, should prove a mine of wealth to its little readers.

#### Mungo Park and the Niger.

Anything connected with Africa and its exploration is sure of a hearing just now. While we rejoice in the success of Mr. Stanley's work in one direction, it would ill become us to lose sight of what was dared and done by his predecessors in the grand task of lighting the Dark Continent. The latest volume of Messrs. G. Philip and Son's admirable series, "The World's Great Explorers and Explorations," is appropriately devoted to the consideration of "Mungo Park and the Niger," by another African explorer, hardly less famous—Mr. Joseph Thomson, of Masai repute. It is most interesting to study the chronological series of maps which Mr. Thomson reproduces in this volume, and note how our knowledge of the Niger basin was acquired, step by step. The oft-told tale of Park's disappearance is well repeated. He died before his self-imposed task was done, but he left the world richer for his labours, as any reader of this volume may see for himself.