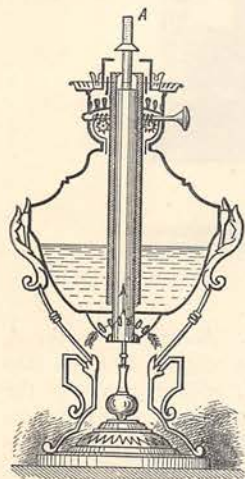


THE GATHERER: AN ILLUSTRATED RECORD OF INVENTION AND DISCOVERY.

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 submitted.

A Safe Lamp.

According to the report of Captain Shaw for 1884, it appeared that about one-fifth of the fires in London



during that year were due to the over-turning or explosion of oil-lamps. The Defries lamp, to which we have alluded before in the GATHERER, is finding favour at the hands of the insurance companies for its safety, and we therefore illustrate it herewith. As shown in the engraving, the oil reservoir is in the form of a ring surrounding a hollow cylinder, by which the air rises from the bottom of the lamp to the flame, as shown by the arrow. The wick is slipped over the tube which forms the hole of the ring, and over the wick is slipped a movable

tube concentric with the first, and extending, when in position, nearly to the bottom of the reservoir. The outer tube has in its upper part a projecting ring, which screws into a similar projection on the mouth of the reservoir, and the sealing of the reservoir is still further secured by two curved flanges, which fit tightly into each other when the tube is screwed up. When this movable tube is screwed on to the lamp, the oil has no exit in any position of the lamp except through the small portion of wick exposed at the bottom of the reservoir; and the vapour has no exit at all except at the point of combustion at the top of the wick. When the lamp is tilted or upset, the oil flows away from the wick and tube, and cannot get out at all. Hence, the most explosive oils may be burnt in this lamp with safety. The complete combustion of the flame is effected by means of a tube, A, closed at the top, and perforated in its upper part. The ascending air is heated in passing from the central tube of the wick through this tube, and escapes by the holes to feed the upper part of the flame, thus keeping it white and clear. The lamp is stated to be economical as well as safe, and will burn both light and heavy mineral oils. Two sizes, giving forty-three and sixty-three candle lights, are now manufactured. One lamp will light a room twenty feet square at the cost of (it is said) one farthing per hour only.

Easily-opened Tins.

We believe it is not at all generally known that tins are now made for the air-tight packing of sar-

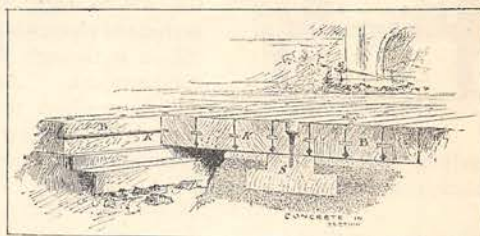
dines, fruits, meats, or other articles, which can be easily and safely opened without recourse to a knife, and without danger of a cut from the jagged edges of the tin. The rim of the tin is slightly inclined from the vertical and the edge of the lid has a corresponding angle, so that when pressed home the tin is perfectly air-tight, especially when, as by the introduction of a recent improvement is now the case, an outer ridge is pressed against the rim of the lid and holds it with great tenacity. Although the lid is thus securely held in its place, when it is required to open it the mere application, with a slight jerk, of a coin to the rim is sufficient to open the tin.

Making Glue Insoluble.

It is stated that glue can be rendered insoluble after use, even in hot water, by adding a little bichromate of potash to the water in which it is dissolved for use. The glued part has then to be exposed to the light. The proportion of bichromate of potash varies with circumstances; but in general one-fifth of the weight of glue will suffice.

A New Wood Flooring.

The figure illustrates a section of a new wooden paving and flooring which has been introduced recently. The salient feature of the paving is the method adopted for keying the blocks so as to keep the surface level. The blocks, B B, are well seasoned to begin with, and dipped, before being laid, in a preservative adhesive compound, which, as there is a V-groove cut along the sides of each block at the bottom, also serves to glue the blocks together and



to the foundation. The blocks are further fastened together by wooden keys, K. The sub-structure consists of concrete, into which blocks are let at intervals, and the blocks of the flooring over these are screwed down to them, as shown, by screws, S. The flooring is apparently a healthy one, since it cannot allow dirt or foul air or vermin to lodge about it.

Ventilating Carriages.

A new system of ventilating railway carriages has been devised by Mr. Robert Boyle. It gives a change of air without creating a draught, and this is effected, as shown in the engravings, by means of a Boyle air-

round the head it would impart too great a warmth, so, except in front, it is not allowed actually to touch the head, but projects through frequent openings in a thin leather lining, this arrangement giving full play to the absorptive properties of the wool while guarding

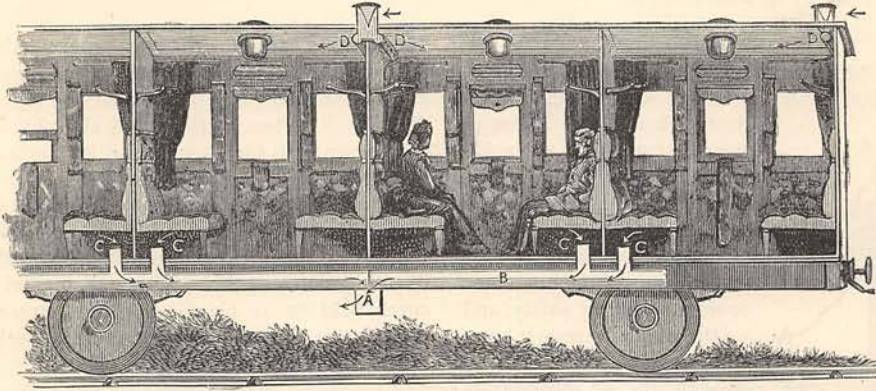


FIG. 1.

pump ventilator, A, connected with a trunk-pipe, B (see Figs. 1 and 2), which runs under each side of the carriages and communicates with branch-pipes, C C C, entering the compartments with branch-pipes, C C C, entering the compartments under the seats, one on each side of the compartment. The mouths of these pipes rise a few inches above the floor, and they are covered with wire gauze to prevent the dirt entering. The flow of air through the trunk-pipe, caused by the movement of the carriage, sucks the vitiated air out of

the compartment, and fresh air enters at the top of the carriage through pipes, D D D, running across the carriage perforated with holes, and connected with downcast ventilators, E E E, fixed on the roof. These ventilators, E E E, allow the air to enter the perforated pipes, which diffuse it through the compartment. Any rain-water which may enter is drained away

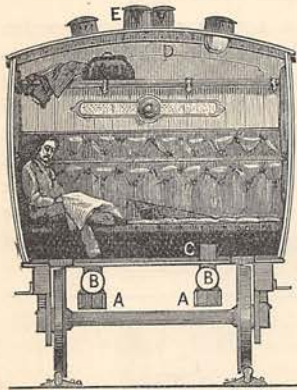


FIG. 2.

properly by outlet pipes. The system allows of a fresh circulation of air without opening the windows.

New Linings for Hats.

There are many sanitary objections to the leather linings ordinarily used in silk and felt hats, the main one being that they do not sufficiently allow for the natural evaporation from the head. To remove this difficulty a new lining has recently been patented by Mr. D. W. Wall, in which the place of the leather band is largely occupied by a slip of porous undyed woollen cloth. If the cloth were to be carried all

the wearer against discomfort. Across the forehead, however, the woollen lining is allowed to come into direct contact with the head, adding greatly to the comfort of the wearer by its softness. For travellers and others who are compelled to wear their hats for long periods this new lining should prove very serviceable, and we therefore commend this device to the notice of our readers.

A Phosphorescent Cloud.

During an Alpine storm on August 6th last, Professor Colladon of Geneva witnessed a curious atmospheric phenomenon. A long black cloud, stretching from La Dôle to Salève, presented on each side a broad phosphorescent border, and about 9.15 p.m. three phosphorescent rays appeared out of a luminous centre in the cloud, and continued for twenty minutes. From then until midnight the south-western extremity of Mount Salève was lit by a bright phosphorescence like the mists of the city of Geneva when lighted up by the gas of the streets. Forests of resinous trees have been seen to become luminous in a similar way, but Professor Colladon was too far distant to notice whether the pines on Mount Salève were luminous.



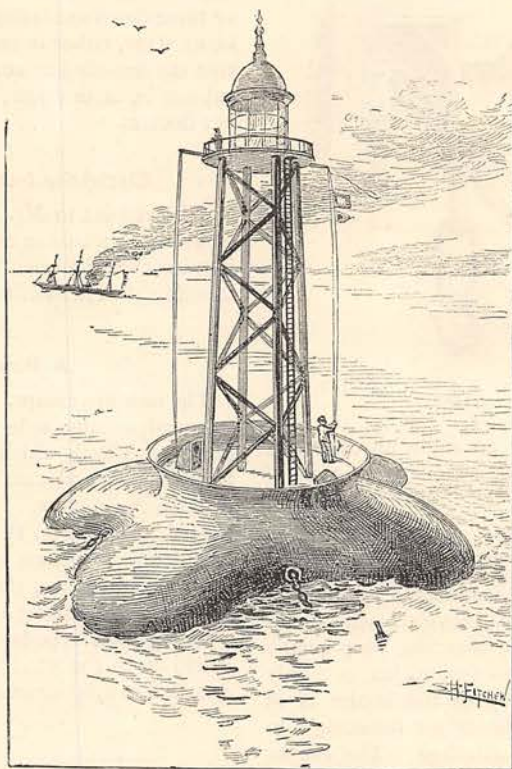
An Unstretching Chain.

A surveyor's chain intended not to stretch, and so alter its length, is shown in our engraving. Each link is of hard tempered steel, and fluted to increase its strength. The long links are connected by two dove-tailed steel rings which cannot open or stretch, and one central solid steel ring, as shown. This arrangement is applicable to other purposes than the measuring chain. But those who know how apt the ordinary

surveyor's chain is to get out of order by the links bending or stretching, will appreciate any attempt to improve upon it.

A Floating Telegraph Station.

Projects have come to the front from time to time for having telegraph stations at sea, so that news could be conveyed from passing vessels; and recently a model light-house and ocean telegraph station has been designed by Captain Moody for the purpose in question or for ordinary light-ship uses. The figure illustrates this model, which was recently constructed at Barrow and tried in Walney Channel. The hull is of iron in the ray-like form shown, and is anchored by four cables to the bottom, or if the water is too deep for that, to four buoys. A lattice tower rising from the ship carries the lighting lantern; and the telegraph cable enters the vessel through a well-hole in its middle, so as not to foul with the moorings, or twist and break with the movements of the tide. The vessel has been exhibited to the Elder Brethren of the Trinity House.



A FLOATING TELEGRAPH STATION.

A Portable Copying Press.

It frequently happens that a traveller or professional man requires a copy of a letter written when no copying press is at hand—while he is on a journey, or at home. To meet such cases a simple form of copying apparatus has recently been invented, which is easily carried about, and requires no special stand like the ordinary copying press. The apparatus consists of a small metal cylinder about nine inches in length, and having a slot down one side. The page of the copying book having been damped in the usual way and the letter inserted, the back of the book is inserted into the slot, and the book tightly rolled round the cylinder by hand, and on relaxing this pressure a perfect copy of the letter will be found in the book.

Copper and Iron Telegraph Wires.

Copper is gradually replacing iron for aerial telegraph lines in this country. The introduction of copper is chiefly due to our atmosphere, in which copper wires are far more durable than iron ones. Hitherto

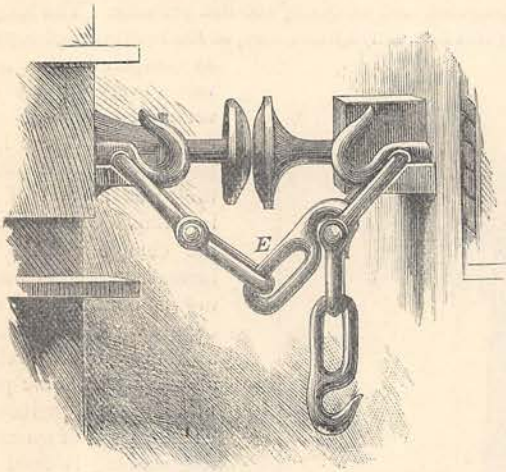
only short lengths of copper wire have been erected in smoky towns and districts where fumes of chemical works would rot iron wires; but recently the Post Office has built a trunk line from London to Newcastle, consisting of a copper wire, 0.80 inch in diameter, and weighing 100 lbs. per mile. The length of this line is 278 miles, and, as the resistance of copper as compared with iron varies very nearly inversely as its price per ton, the cost of the line per mile remains about the same as that of an iron line. One result of the change is that an increased speed of working is obtained on the copper wires, which have also been found preferable for telephonic purposes by some engineers. The increase of speed in telegraphing is from 10 to 20 per cent., according to circumstances. This effect is due, according to Mr. Preece and Professor Hughes, to some difference in the molecular nature of the two metals, the copper being more quickly susceptible to changes in the electric current than the iron. Copper telegraph wire was also tried in the Eastern Soudan during the operations round Suakim. It was subject, however, to this dis-

advantage, that it was easily broken by the hostile natives, and not very readily mended again. For military purposes a copper strand is considered by some to be better than a single wire. We may mention that the telegraph was at work in the thick of the fight at McNeil's zareba, communicating intelligence to Suakim. This is perhaps the first instance on record of the fighting line having a working telegraphic connection with the base of operations.

A Simple Railway Coupling.

Various plans have been devised for relieving the person coupling or uncoupling railway carriages and trucks from the danger of having to go between the vehicles. Somehow these have not been a practical success; but the device which we illustrate has the merit of simplicity, and can be worked by means of a short stick or pole. The figure shows the chain-coupling, which has to be joined by the stick. This is done by shifting one or other hook—say E—with the stick, and dropping it into the upper link of

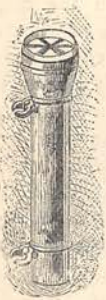
the opposite chain; and the novelty of the present invention is that the coupling chains, being made in two links, facilitate this process, while the upper



link, being allowed to rest at an angle on a wooden support, brings the two chains within easy reach of each other.

A New Whip-Holder.

The figure illustrates a new whip-socket, which is provided with india-rubber teeth, so that the whip-handle when thrust into the socket is firmly held. The body of the holder is of wood; and a device for fastening it to the vehicle is attached. The rubber teeth can be removed when desired, and their place supplied by others.



To Amateur Photographers.

Under the patronage of H.R.H. the Princess Frederica, the Baroness Burdett-Coutts, Lady Brassey, Lord Lawrence, and other well-known names, an International Amateur Photographic Exhibition will be held at 103, New Bond Street, London, W., from April 15th to May 24th, under the auspices of the London Stereoscopic Company. All the profits of the exhibition will go to the funds of Princess Frederica's Convalescent Home, Hampton Court, so that amateur photographers who enter their works for this competition—and all may do so on application to the manager—will have the additional satisfaction of helping forward a good work. The exhibition will be divided into fourteen classes, embracing all the various branches of this deservedly popular art; and gold, silver, and bronze medals will be awarded to the best works. Of the advantages that amateurs may gain from such competition and comparison with the work of other amateurs at home and abroad, it is unnecessary to speak, for they are evident.

A Russian Cure for Hydrophobia.

Following M. Pasteur's discoveries in France, a new remedy for hydrophobia is reported from Russia. It consists of the onion-shaped root of the water-plantain, which flowers in the summer. The roots should be collected in the month of August, dried and grated; the powder should then be spread on bread and butter, and so administered to the patient. It is said that two or three doses are sufficient to cure hydrophobia in its acute stage, either in men or animals, and it is claimed that the remedy has never been known to fail. The subject is, at any rate, deserving of the attention of our doctors.

Electricity from Running Streams.

With respect to Mr. Hett's Turbine, a brief notice of which appeared in the GATHERER of January last, inquirers are informed that fuller particulars are to be found in the *Electrician* for October 30, 1885.

A New Fire-Escape.

The new fire-escape, which we illustrate herewith, is intended to supersede the cumbersome escape transported on wheels which is now used. It weighs only forty pounds, and can be easily carried and put into position by a man. The apparatus consists of a jointed tube, A (Fig. 1), with a hook, B, at one end to catch on a cope-stone or window-frame, and an endless rope, C, running through a pulley below the hook, and carrying a strong swivel-hook, D, to which is fixed a strong steel rope-ladder, E (Fig. 2). This ladder is pulled up to the window by the rope, C (Fig. 1); and attached to it by means of chains at FF (Fig. 2) are two

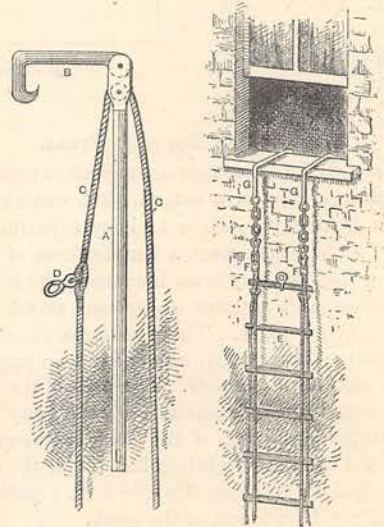


FIG. 1.

FIG. 2.

hooks, G G, made to fit any window-sill. The fireman first fixes the hook, B (Fig. 1); adjusts the rod, A; pulls up the ladder, E (Fig. 2); mounts it, then fixes the ladder in the window-sill, and assists the inmates of the room to descend. When he has descended him-

self, he pulls the two lines attached to the ladder at F F, thus releasing it from the chains and hooks, which may be recovered afterwards. Duplicate sets of chains and hooks are supplied with each escape.

Uintahite.

Uintahite is a new variety of asphaltum found in the Uintah mountains of Utah, North America. It is very hard and brittle, black and lustrous. It burns in the flame of a candle like sealing-wax, and also takes the impression of a seal, but unless very hot will not adhere to cold paper. It dissolves in warm turpentine, but not in alcohol. It combines with wax and ozokerit, which it resembles, and with melted tallow or stearine. Peculiar uses have not been found for it yet; but no doubt there is a sphere of action for it in the arts, like other substances of its kind. If, as is likely, it prove an insulator of electricity, it may yet be used for this purpose, either mixed with ozokerit or some other insulator.

Electrical Imitation of Leather.

An electrical process for the imitation of leather surfaces has been brought out. The leather to be imitated is cleaned and rubbed with graphite, then placed in a copper bath, and copper deposited on the graphite surface. This gives a copper electrotype of the leather surface, which forms a cast of the skin, and is used for reproducing the pattern of the hide. Shall we ever have casts of human faces made in some similar way, as an aid to, or a rival of, the sculptor?

Door Buffers.

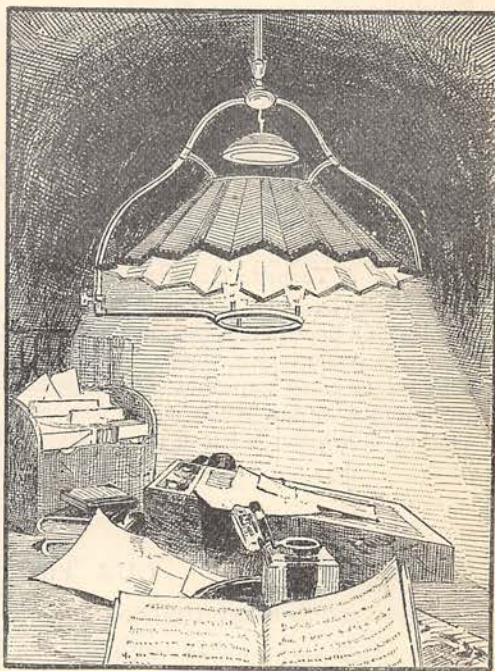


An india-rubber buffer for preventing the slamming or jarring of doors, windows, or pianos when shut, has been brought out recently. The figure illustrates the device, which is let into the frame of the door, and consists of india-rubber teeth in a metal frame which is sunk and screwed into the wood. Some doors require more than one of these, and a variety of patterns are made to suit different tastes and circumstances.

A Wind Globe.

An ingenious French priest has devised a terrestrial globe which when rapidly rotated on its axis in the surrounding air produces many of the great terrestrial air currents, such as the trade winds, the zone of calms and light breezes at the equator, and the vertical currents at the poles. These mimic winds are shown by a large number of small girouettes placed all over the surface of the globe. This imitation of a natural phenomenon has been accompanied lately by an imitation volcano for laboratory purposes. The volcano is produced from furnace slag by imprisonment of its gases as the crust of the slag cools. The gases burst out and throw jets of molten slag into the air. These, descending, form a cone round the mouth of the blow-hole, with a vent out of which the liquid lava runs after

the manner of a volcano. While upon this subject we may mention that at the recent meeting of the British Association, a paper was read in which the evidence, according to the author, pointed to the supposition that the centre of the earth was solid and not liquid, as has been thought by many scientists. Volcanoes and other phenomena of the kind which seem to indicate internal heat may arise from comparatively local causes.



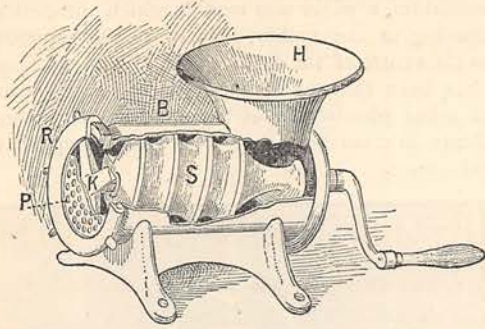
A New Reflector.

The reflector which we illustrate is suitable for all kinds of lamp—gas, oil, or electric. They are now much used in Liverpool in the shops and warehouses, and have an ornamental appearance. The conical reflector is so formed as to diffuse the light from its facets, and the inverted cup hanging above arrests the heat.

A Chopping Machine.

A machine for chopping meat without smearing it has been brought out recently, and is illustrated here. It is made for use in ordinary households, and is capable of chopping from one to four pounds of meat per minute. It consists of a hopper, H, into which the meat is fed, and a barrel, B, containing a screw, S, revolved by the handle shown. This screw is fitted with a four-bladed knife, K, which revolves with it, and cuts the meat. A plate, P, perforated with numerous small holes, fits into the end of the cylinder against the knife, and the meat being carried forward by the screw, is forced through the small holes by the pressure, and is then cut through by the revolving knife. The small pieces thus cut off are forced out by the continued revolution of the screw and pressure of the meat behind; R is a ring which

fits on the end of the barrel ; the other parts shown will explain themselves. From the above description



it will be seen that the meat is really cut into small pieces, and that the machine is of a simple character, not likely to get out of order.

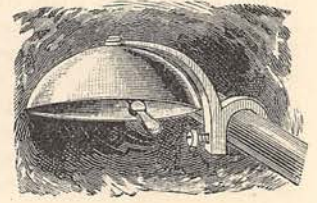
A Torpedo Catcher.

The Admiralty have adopted the principle of setting a thief to catch a thief, in the construction of a number of small, quick steam vessels, similar to torpedo boats, but designed to catch torpedoes. An experimental catcher invented by Mr. White is 150 feet long, 17 feet 6 inches broad, and 9 feet 6 inches deep. Her

displacement is about 125 tons. She is built of thin steel, and has a conning tower in her middle, from which she is steered. The speed of the craft is about 20 knots per hour.

A New Cycling Bell.

The figure shows a new bell for cyclists, in which the lever and hammer are combined so as to give more weight to the latter and produce a fuller sound. The vibrations of the bell are also less impeded by this arrangement. By unscrewing the bell from its support the lever can be placed in any position to suit the rider.



An Electric Mountain Railway.

An electric railway is to be built up the Salève mountain, near Geneva, in Switzerland. The line will be laid with a central rack similar to that on the Righi but the toothed pinion on the locomotive which gears into it, instead of being driven by steam, will be worked by electricity.

OUR PRIZE COMPETITIONS.

FIFTY-POUND STORY COMPETITION.

As was briefly announced in our last issue, the PRIZE OF FIFTY POUNDS has been awarded to

KATE EYRE, 215, Peckham Rye, London, S.E. ;

but the work of two other competitors was of so high a degree of excellence, that the Editor has decided to award two additional Prizes to these competitors, and accordingly has the pleasure to announce that a SECOND PRIZE of THIRTY POUNDS has been awarded to

FLORENCE M. KING, 52, Brunswick Place, Brighton ;

and a THIRD PRIZE of TWENTY-FIVE POUNDS to

T. KEYWORTH, 52, Selborne Street, Liverpool.

Special Commendation is accorded to the work of another competitor :—

The Marchioness of Carmarthen ;

and Honourable Mention to that of two others :—

Edward McNulty, Dublin, and
John Rice, Plymouth.

In accordance with the regulations of the Competition, the copyright of the three Prize works becomes the property of the Proprietors of the Magazine, and the Editor hopes to be able to make use of the three Prize Stories in future issues.

POEM COMPETITION.

After careful consideration of all the MSS. submitted in this department of our Competitions, the Editor has the pleasure to announce that the PRIZE of FIVE GUINEAS, offered for the best Poem on the Twentieth Century, has been awarded to

KATHARINE S. MASTERS RAE, Duckspool, Dunganarvan, Co. Waterford.

Honourable Mention is awarded to the work of the following competitors, in order of merit :—

Margherita N. Daniel, Glasson, Athlone.

Thomas Alderson Wilson, Church Terrace, South Lambeth, S.W.

Ethel May Hewitt, Barbados, West Indies.

Margaret Haycraft, Epsom.

J. W. Meaden, Melbourne, Australia.

H. G. Groser, Crouch End, N.

E. J. Fletcher, Cheltenham.

The Editor hopes to publish the Prize Poem in an early number of the Magazine.

HANDWRITING COMPETITION.

The Editor begs to remind competitors that March 31st, 1886, is the latest date for receiving entries for this Competition. The Editor has much pleasure in announcing that it has been decided to issue a number of CERTIFICATES in connection with this Competition, in addition to the Prizes already offered.