



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.

### OUR PRIZE COMPETITIONS.

OUR readers will be pleased to hear that an entirely new scheme of Competitions has been arranged for 1896, and we give below particulars of the first series. In order to be as comprehensive as possible, the Competitions are grouped in such a manner as to include LITERARY, ART, and DOMESTIC subjects; and we would draw special attention to the necessary Rules and Regulations which are to be found on page 80 of this issue. Further Competitions in each series will be announced from time to time.

(a) *Serial Story*.—Two Prizes of £50 and £30 respectively, are offered for the best and second-best Story of 40,000 words in length, suitable for serial publication in this MAGAZINE. Each MS. must be divided into four parts, each containing 10,000 words, and must be accompanied by (1) a short outline of the plot of the story, not exceeding 500 words in length, and (2) a plan showing how the plot is developed in each part. All MSS. must be legibly written, and be in the Editor's hands not later than June 1st, 1896. Brightness of style as well as originality of plot will be taken into consideration.

(b) *Summary*.—Two Prizes of One Guinea and Half-a-Guinea respectively will be given for the best and second-best Summary of the Serial Story by FRANK BARRETT, entitled "A Missing Witness," which is commenced in this number. The summary must not exceed 1,000 words in length, and should be in the Editor's hands by July 30th, 1896, before which date the story will have been concluded. A long date is given in order that foreign and colonial readers may not be debarred from competing.

(c) *Photographs*.—Two Prizes of £5 and £3 respectively are offered for the best and second-best Snap-shot Photograph of any outdoor scene, humorous or otherwise. The photographs should be mounted silver prints; but any photographs which have previously been publicly exhibited, or to

which any Prize has been awarded, are excluded. May 15th, 1896, is the latest date for the receipt of photographs in this Competition, which is open to amateurs only.

*Laundry-Work*.—*Best Collars*.—Two Prizes of One Guinea and Half-a-Guinea respectively, are offered for the best and second-best got-up Gentleman's Collar, which may be of any shape. The collars should be packed in a cardboard box to prevent damage, and should reach the Editor not later than January 16th, 1896. No competitor is allowed to send more than one collar.

*Needlework*.—*Handkerchiefs*.—For the encouragement of needlework amongst young people, we offer two Prizes of One Guinea and Half-a-Guinea respectively, for the best and second-best Hemmed Linen Pocket-Handkerchief (gentlemen's), which should be received not later than February 17th, 1896.

### The Titan's Bridge.

Oregon has a natural bridge which rivals that of Virginia. The "Titan's Bridge," as it is called, was discovered by Mr. Magee, about 18 miles from Oakland, in Douglas County, Oregon. It spans a cañon 91½ feet wide, at a height of 95½ feet above the stream below. The stratum of rock and soil forming the arch is 30 feet thick, and bears a few trees or bushes. The bridge is now a resort of tourists, and a hotel is about to be erected for their accommodation.

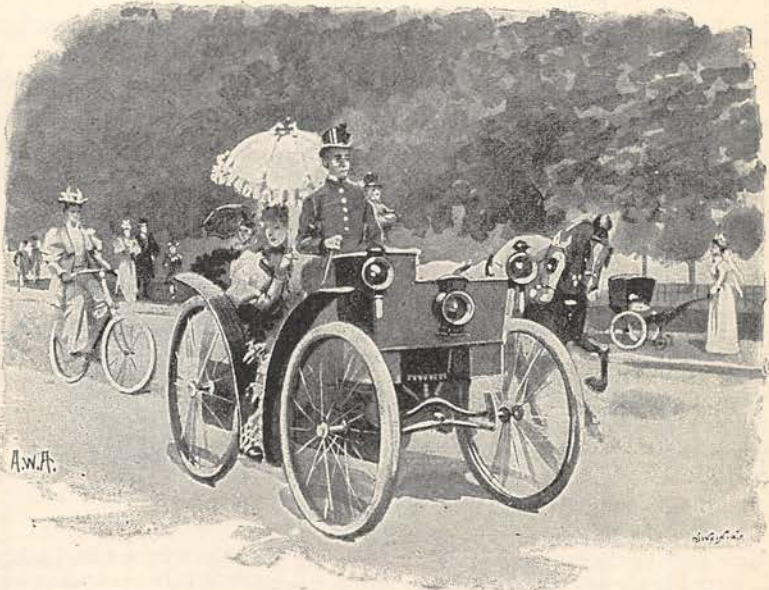
### A Photographic Eye.

M. Lippmann, the well-known photographer, has devised a plan of observing the stars by means of an instantaneous photographic plate in lieu of the eye, thus eliminating the tendency to error which is inseparable from human organs. In order to fix the position of the star, it is necessary to mark the meridian on the plate, and this is done by an ingenious system of flashes every second which record themselves on the sensitive surface as it is moved by clockwork at the rate of the heavens—that is to say, of the rotation of the earth.



**Pneumatic Tyres on Carriages.**

There is every prospect of the pneumatic tyre, so common in bicycles, being applied to hansom cabs and other carriages. As it is, one of the self-moving or "automotive" carriages which took part in the recent race between Paris and Bordeaux was fitted with these tyres, as may be seen from our illustration, which represents the Michelin carriage. We may add that in our own country Sir David Salomons has taken up the subject of self-moving carriages, with the result that prizes will be offered for the best at the Agricultural Show to be held in Tunbridge Wells next year.

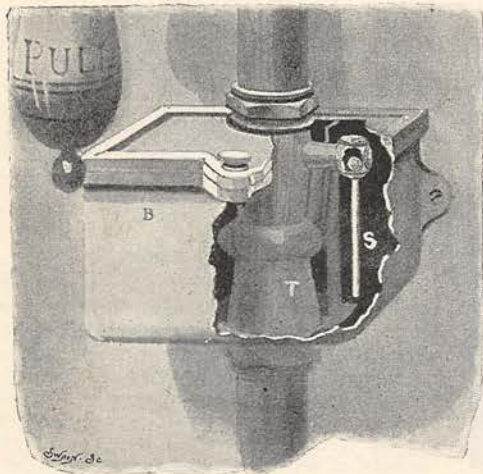


PNEUMATIC TYRES ON AUTOMOTIVE CARRIAGES.

**Bicycle Riding in Winter.**

The shortness of the hours of daylight and the frequently wet condition of the roads throw difficulties in the way of bicycle riding in winter. But if fairly faced, these difficulties will not prove insuperable. The rider should, in the first place, know exactly at what hour it will be dark, and be sure to take a lamp if he expects to be still out within an hour of lighting-up time. On returning from a ride in the dark, he should at once attend to his lamp, so that it may be ready next time if wanted in a hurry. The charred part of the wick should be cut off, the receiver filled up with oil, the glass and lenses polished, and the accumulated smoke wiped from the top of the lantern. The wet condition of the roads necessitates the use of a non-slipping tyre, of which many patterns are in the market. Any rider whose machine has smooth

tyres is recommended to have that efficient substitute, a non-slipping band, fitted at once to his back wheel. He should also ride slowly whenever the road is wet, because in the event of a "side-slip" the injury to self and machine is minimised. It is well to bear clearly in mind that "side-slip" is caused by the tyres suddenly losing grip of the road, and, therefore, that the rider courts disaster if on a wet surface he swirls round a corner, leaning his body sideways, or steers fast in and out of traffic with his machine on a slant, or rides on the slope of a road which drops considerably, as most town roads do, from the centre to the edge. These evolutions, though perfectly safe when executed on a dry surface, are very risky when the roads are greasy, wet, or muddy, and especially in towns.



A SELF-ACTING DISINFECTOR.

**A Self-acting Disinfector.**

An automatic disinfecting-box which will satisfy a felt want is shown in the wood-cut. It is intended to disinfect closets, and can readily be applied to those in ordinary use. As will be seen, it consists of a small iron box B, about three times the size of the illustration, which contains a brass tube T. A small syphon-pipe S, closed above by a ball valve as shown, communicates with the tube T. The box is fixed by the tube to the fall-pipe of the closet between the cistern and the pan, and filled with a liquid disinfectant. When the cistern is brought into action, the water rushing down the fall-pipe through the box makes the syphon act, and draws about a teaspoonful of the disinfectant into the tube and fall-pipe, and from thence into the pan. When the cistern ceases to act, the ball valve closes, and no more disinfectant is drawn out. The lid of the box is detachable, so that it can readily be removed for filling when required. Should the box become empty, it will not interfere



with the working of the cistern. Any liquid disinfectant may be used, but the makers recommend "kreasole."

#### Killing Weeds by Electricity.

On some of the American railways the weeds growing along the track are now killed by spraying them with water from the locomotive and then giving them a powerful shock of electricity from the electric light machinery, which acts on them like a small flash of lightning and destroys them. We may also mention that the "shade trees" in an American city have been seriously blighted by the electric current. It appears that electric light wires run through the leaves of the trees, and after a shower of rain the leakage of electricity is such as to shock and "blast" the foliage. It is never wise to run bare electric wires through trees or other vegetation, but American electricians are more reckless and not so well-trained as those of Europe.

#### Automatic Photographic Printing.

Photographs are now printed automatically in New York by the machine which we illustrate. It is placed in a room illuminated with red light, and consists essentially of a broad band of sensitised paper, shown, which travels under the negative to be photographed. An electric lantern above the negative illuminates it by flashes, and at each flash an image of it is impressed on the travelling paper, which passes into another room, and is developed, cut into separate pictures, and mounted in the usual way.

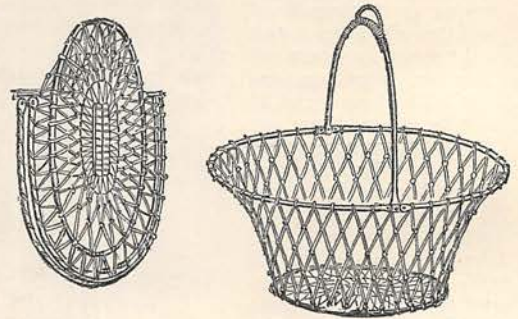
#### Danger from Fast Trains.

Not long ago a child of eleven years was thrown down by a passing train and killed in St. Louis, United States, and in the lawsuit arising from the accident, Professor Nipher, of Washington, showed that a moving train draws with it a great volume of air. The displacement of the air increases with the speed of the train, and as its pressure on a person standing near is greatest on the side next the train, there is a danger of his being turned round and upset so as to fall under the train. The

court held that the railway company should pay damages to the parents of the dead child.

#### A Folding Basket.

A light and elegant wire basket which can be folded up as shown in our wood-cut has been



brought out in Paris. It cannot fail to be useful to ladies out shopping, and is an improvement on the old-fashioned reticule.

#### The Honey Guide.

The "honey guide" is a small bird in South Africa which by its flight and peculiar cry, "chicken chicken, chik churr churr," conducts the white or black man to the honey of wild bees. The object of the bird in thus warning and leading persons to the hive of the bee is to obtain the young larvæ, of which it is very fond. There are three or four varieties of the honey guide, but the *indicator major* and *indicator minor* are the best known. They are brown-yellow birds about the size of a starling, and belong to the cuckoo family.

#### Oxygen from Water.

Pure oxygen and hydrogen gases are now obtained from water by means of the electric current on an industrial scale. Signor Garutti, of Naples, has erected works for the purpose at Naples, the electricity being passed through the water from metal grids plunged in it. The liberated gases are stored separately and employed for various purposes, but chiefly for producing the oxy-hydrogen limelight which has been tried for lighting the streets of Naples, and for search lights on board Italian men-of-war.

#### A Pocket Kodak.

The "kodak" camera is too well-known to require any description at our hands, and some of our readers may be pleased to hear that a small size intended for the pocket has been brought out. Fig. 1 will give an idea of its appearance, and when we add that its weight is 5 ounces, its dimensions 2½ by 2½ by 3½ inches, we need hardly say more. Spools of sensitive film are supplied at a nominal price, and these can be inserted



AUTOMATIC PHOTOGRAPHIC PRINTING.



into the camera or withdrawn from it in broad daylight. Another portable camera which has made a name in France is the "photosphere" shown in Fig. 2. It is constructed of metal and fit for travelling even in wild countries. Moreover, it is a magazine-camera, and so contrived that twelve pictures can be taken in rapid succession without readjustment. It may also be mentioned that the "photo-jumelle," or field-glass magazine camera described in a former GATHERER, is now adapted to take panoramic views all round the horizon.

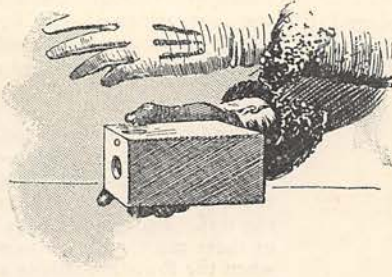


FIG. 1.—A POCKET KODAK.

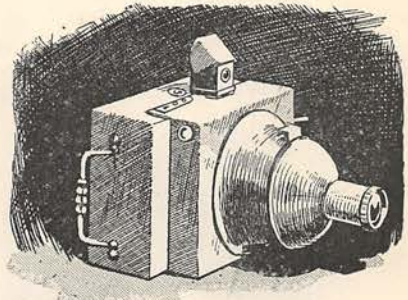
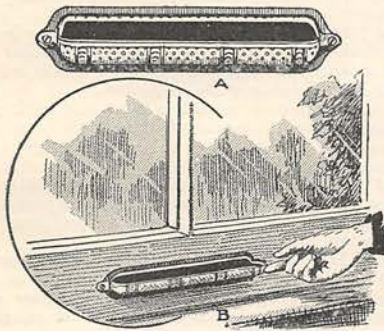


FIG. 2.—THE "PHOTOSPHERE."

#### A Window Ventilator.

A simple means of ventilating rooms by the windows without opening them is shown in our illustration. A hole or slot is cut through the lower sash rail of the window, and the ventilator



A is fastened in it as seen at B. The ventilator can be opened or shut as desired to admit or exclude the fresh air whether the window is locked or not.

#### The "Mammoth" Coal Vein.

What is believed to be the largest vein of coal in the world occurs at Shenandoah Stopping in the United States. It is fifty feet thick, and so near the surface that it is simply quarried like stone. No fewer than 7,415,000 tons of coal were extracted from it last year by the Philadelphia and Reading Coal and Iron Company. While upon this subject, we may mention that the largest "black diamond" or carbonado yet known, was recently found in the mines of Bahia, Brazil. It is the size of a closed hand, and weighs 3,000 carats. Its internal structure is similar to the artificial black diamonds made by M. Moissau, the French chemist, by heating sugar in the electric furnace. The stone is too valuable to waste, it seems, and is to be cut for industrial purposes; but a model of it will first be made.

#### Some Household Novelties.

A reversible brush has just been patented to meet the need of those householders who complain that one end only of a handbrush is worn out when the brush is usually condemned. To equalise the wear the inventor has fitted the bristles into a detachable piece of woodwork, secured by two screws at equal distance from either end of the brush back; so that, when one end of the brush is worn out, the frame may be reversed so as to bring the fresher end into use.—The "Budget" Letter Cards offer a novelty in stationery which all who travel will appreciate, for they combine the advantages of the now familiar letter-cards with the convenience of an additional four-page sheet of note paper securely and neatly attached.—The "Dome" Beetle Trap should appeal to all householders who suffer from the unwelcome presence of such insects. It is simple in its action, is strongly made of metal, and is covered by a shield which takes away from the unpleasantness generally associated with the sight of such useful appliances.—Some simple egg-beaters have recently been brought out which are made of a single well-coiled spiral of carefully finished wire. They are very pliant, very easy to use, and of course have nothing to get out of order.

#### Seasonable Cards and Games.

We have all of us heard for a good many years that Christmas cards were going out of fashion, but judging from Messrs. Raphael Tuck and Son's productions for this present season, there is evidently a good deal of honest and very excellent work being still put into them. It would be impossible in the space at our disposal to attempt anything in the nature of a detailed survey of the very varied works which this firm has produced, but while their autograph and other cards are excellent, the palm must, we think, be given to the "Festive Hours" screen, and to a wonderful reproduction of Noah's Ark under the title of "The Animals Walked In Two by Two." Cards, calendars, and booklets, all alike, display well-chosen designs and careful execution.—A new series of games for children is produced by Messrs. Meissner and Buck under the title of "Dressing Figures," the principle of which is the substitution, or rather superimposition of different costumes upon the same figure, and thus producing lightning changes provocative of much mirth and astonishment.



### A Hygienic Vest.

The waistcoat which we illustrate is designed to protect the lungs, especially at the back, where they come nearer to the surface of the body. It is



composed of two layers of woollen cloth and one of silk perforated for ventilation and prepared with a chemical possessing sanitary virtues. As a safeguard against cold and rheumatism the vest has been recommended by Dr. Andrew Wilson, and other medical authorities.

### FLOWERS, BEES, AND POULTRY.

**P**EOPLE in all conditions of life think more of the flowers and country than a few years ago. A healthy awakening to the keen delight of having flowers constantly with us has arisen, and not only is there joy in looking at and working amongst such treasures, but they bring healthy appetites, ruddy cheeks, and a sharp perception of the beauties of Nature.

Each month we shall have something to say about three hobbies—flower gardening, bees, and the poultry yard. Flowers are within the reach of all who possess a strip of garden, but one needs the country to indulge much in hives or poultry runs. Not a few, however, of the readers of CASSELL'S MAGAZINE reside in quiet English villages where Gloire de Dijon roses clamber over the doorposts, and "Honesty" makes purple patches in the borders.

**GARDENING.**—There is little to be done in the garden at this time. The principal thing is to thoroughly dig up the soil, incorporating lime with heavy manure-filled ground. Leave the soil exposed for rains and frosts to sweeten. Never over-water plants, as moisture does not dry up quickly, unless the greenhouse is left to the tender mercies of an evil-smelling, air-consuming stove. Keep window plants away from draughts, and even in winter sponge the leaves weekly to remove dust and dirt.

**BEES IN WINTER.**—If the beekeeper thinks a stock is short of food, place candy cakes on the frames under the coverings. Never supply liquid food, as this gives the bees dysentery. It is

important to maintain a regular temperature in the hive, which should be in a dry position. A zigzag entrance is very useful in preventing, during mild weather or gleams of sunshine, the bees from leaving the hive under the supposition that spring has arrived. If the hive is not fitted with this form of entrance, fix a shading board in front.

**POULTRY IN WINTER.**—The house for poultry must be free from draughts, and now is a good time to thoroughly cleanse the run, scattering lime on the turf. See also that the perches are kept clean, as these are used more in winter than in summer, when the fowls are able to scratch about in meadow and yard. An important winter meal for poultry is the hot early breakfast, to consist of boiled potato parings, scraps from the table, and a pinch of poultry spice occasionally. Give a feed of mixed corn in the afternoon, and a little later on also, if that previously given has been picked up. Never waste.

### GENERAL REGULATIONS FOR THE PRIZE COMPETITIONS. (See page 76.)

1. Every reader of the MAGAZINE (not being an ordinary contributor to its pages, or the winner of the first prize in a former competition of a similar nature, in connection with this MAGAZINE) is eligible to enter the competition. No competitor is allowed to send in more than one entry for the same competition.

2. The Editor cannot undertake to answer any inquiries. *The particulars given under each head are sufficient for the purposes of the competition, and everything else is left to the judgment and discretion of the competitors.*

3. All communications regarding MSS. and work entered for the above competitions must be sent in the same packets with the work. No previous or subsequent communications (except under Rule 7) can receive any consideration. The award of the judges will be published in the MAGAZINE as soon after the close of the competition as possible, and no information respecting the award will be given before this publication.

4. Every MS., photograph, or other entry must have inscribed on it, or otherwise securely attached to it, the name and postal address of the author, together with a declaration *that the work is original and entirely the sender's own, and that the competitor is an amateur*, to be signed by the author and countersigned by some other trustworthy person—*i.e.*, a magistrate, minister of religion, or householder—with the postal address in both cases.

5. The copyright of the prize work, or works, will become the property of the proprietors of this MAGAZINE.

6. Should two MSS. or other entries be, in the opinion of the judges, of equal merit, any prizes may be divided between their authors at the discretion of the Editor. Any, or all, of the prizes may be withheld in the event of no entries in the competition being thought by the judges to be worthy of distinction.

7. All packets containing MSS. or other entries should be prepaid. The Editor will not be liable for loss or miscarriage of any work. Unsuccessful competitors (except in postcard competitions, or where special means of disposing of the entries are announced) may have their work returned to them at their own risk, upon application to the Editor, *after the publication of the award*. Any such application must be made within *one month* of the publication of the award and be accompanied by stamps to defray the cost of carriage. (Competitors should *not* send stamps, or instructions for return, *with their MSS.*, as no notice can be taken of any communications of this nature made before the award is published.)

8. All entries should be addressed—The Editor of CASSELL'S MAGAZINE, La Belle Sauvage, London, E.C. Each packet should bear on the top left-hand corner of the envelope or wrapper in which it is enclosed the name of the Competition for which it is sent.