

two further Reports were issued—the twenty-ninth Report in 1835, and the thirtieth Report in 1837; also, in 1835, an Analytical Digest was published of the Reports from 1832 to date. Altogether, up to June, 1837, no fewer than thirty-eight volumes of Reports were issued, some consisting of two, others of as many as six parts. There was also issued in 1835 a Report from the Select Committee on the evidence in the several Reports from the Commissioners of Inquiry concerning Charities in England and Wales, and on the means of completing the Inquiry. The fifteen Reports on Educational matters issued in these two years did not specifically deal with Charities, and only incidentally with Endowments—chiefly in Ireland. The additional cost of the Commission of Inquiry to the end of 1836 was £24,456. The total annual income of all Charities, so far as ascertained in 1834, was £428,311 7s. 7d.; of which £111,460 4s. 9d. was applied to Education, the remainder being applied to various purposes, according to the objects for which given. By the end of 1837 the number of grammar schools reported on was 700; of endowed schools (not classical), 2,150; and of Charities not attached to endowed schools, 3,390. The income of grammar schools reported on was £152,047 14s. 1d.; of endowed schools (not classical), £141,385 2s. 6d.; and of other Charities given for, or applied to, Education, £19,112 8s. 8d. The investigations were ultimately completed; the total number of Charities inquired into being 28,000; the number of Reports issued up to 1849 filling thirty-eight folio volumes. The Inquiry

did not extend to the Universities nor to the City of London. A Royal Commission was appointed in 1849 to examine the then completed Reports of the Commissions of 1818 and 1835. The first Report was published in 1850, the second in 1851. These elaborate Reports form the basis of all authentic information as to Charitable Trusts; in some instances additional information has been obtained by subsequent investigation, during the preparation of schemes by the Commissioners.

The Reports made by the several Royal Commissions, and by the Select Committees to which they were referred, recommended that the duty of exercising the then existing system of protection over Charities—hitherto inadequately discharged by Courts of Equity—should be transferred to a permanent and independent administrative authority, which should differ from the Court, not in the scope of its powers, but in the continuity and vigilance of their exercise. Courts of Equity had for over three hundred years exercised some kind of jurisdiction over Charities, but the sole object of their interference was to see that “the charitable intent of the givers and founders of Charities” was adhered to; with that view the property of Charities was protected, and the Court assumed some control over the persons charged with administering the property. Generally speaking, the main object of State control over Charitable bequests still is the promotion of the intentions of the donor or founder; but Parliament has wisely enlarged the scope of State interference in recent years.

THE GATHERER:

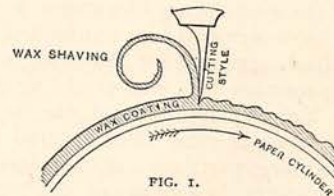
AN ILLUSTRATED RECORD OF INVENTION, DISCOVERY, LITERATURE, AND SCIENCE.

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.

The Graphophone.

The graphophone of Professor Graham Bell and Mr. Summer Tainter is a similar instrument to the phonograph. It also records and reproduces speech, music, or other sounds on wax, by means of a vibrating diaphragm and stylus. But the two contrivances differ in detail from each other. The phonograph has been designed to suppress all vibrations proceeding from the working of the mechanism, thus leaving the voice or other sounds recorded as clear and distinct as possible. In the graphophone a simpler and probably less expensive apparatus has been arrived at, which, as shown in Fig. 2, resembles a sewing machine, and is worked by means of treadles. The wax which receives the record is a black composition, smoothly spread over the outside of a paste-board tube (D, Fig. 2), which slips on a revolving barrel. Over the surface of the wax is mounted a

cutting stylus, actuated by the vibrations of the diaphragm in such a manner as to cut a record of them in the surface of the wax along a spiral line as the tube or cylinder revolves on the barrel. Fig. 1 illus-



trates this cutting action of the stylus, and the hilly trace it leaves behind it as a record of the sound. It will be readily understood that another stylus traveling over this groove again will be obliged to follow its undulations, and will thus be able to set another

diaphragm into vibrations, reproducing the original sounds. In Fig. 2, A is the recording diaphragm mounted over the wax tube. Flexible branched speaking-pipes, with mouthpieces, B B, convey the sound of the voice to the diaphragm, A, which vibrates under it, and having a cutting stylus on its under side,

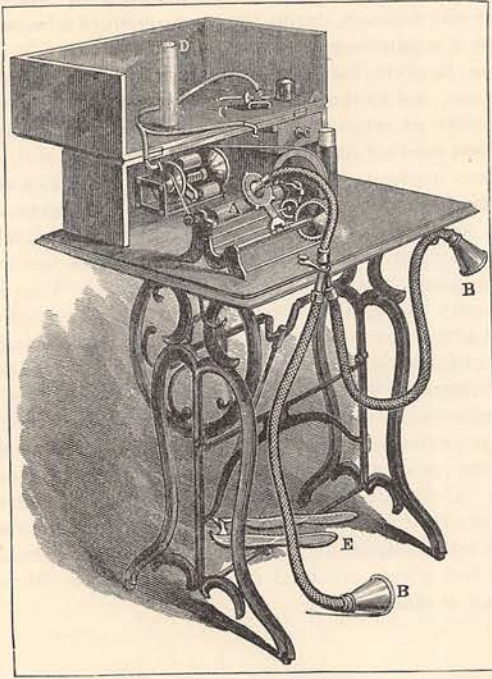


FIG. 2.

impresses the sounds upon the waxen surface as it revolves underneath. The revolution of the record is performed by working the treadles, E, seen under the machine. When a record is completed, the diaphragm, A, is detached, and a second, or reproducing diaphragm, with branched hearing-tubes, C, is substituted. The hearing-tubes being applied to the ears, the cylinder with the record impressed upon it is set so as to revolve under the stylus attached to the reproducing diaphragm, so that the stylus travels over the groove or sonorous trace, and causes the diaphragm to reproduce the original sounds. The reproducing stylus is a small curving piece of metal attached by a cord to the centre of the reproducing diaphragm in such a manner that its movements are transmitted to the centre of the diaphragm, and set the latter in vibration. We may mention here that, according to latest accounts, Mr. Edison has discarded wax for taking the record, in favour of some other material not yet disclosed. Intending purchasers of the phonograph or graphophone would do well to see and hear both instruments before deciding which to have.

Cellular Clothing.

Under-clothing of every kind is now being made of a cellular cloth, whose fine meshes form an extremely

porous material, permitting a free circulation of air about the skin, and at the same time affording a ready outlet for the secretions. For cyclists especially this new material is admirably adapted, while its lightness must make it very valuable for summer in our own country, and for general wear by colonists in newer and more tropical lands.

Some Novel Christmas Cards.

The most striking feature about the cards for this season seems to be the introduction of embossed borders to cards printed on flat surfaces by Messrs. Hildesheimer & Faulkner. The embossing is frequently done in several colours, generally all lighter than the prevailing tones of the picture they surround, and the effect is very delicate, and needs to be seen to be appreciated. Among the photographic opal souvenirs issued by this firm are some very tasteful new designs, which are sure to commend themselves to those who like their "cards" to be at once novel and artistic. All the cards issued by Messrs. Hildesheimer & Faulkner are remarkable for the eminently high character of their workmanship and careful finish. The "Gem" series of "Visette" cards issued by Mr. J. F. Bennet, are furnished with an opening for the sender's card, surrounded by pretty designs printed from steel plates in soft tints, together with appropriate mottoes and wishes. The chief novelty in Messrs. Raphael Tuck & Sons' collection for this season is a beautiful reproduction of Raphael's masterpiece, "The Madonna Sixtina," of the Dresden collection, which is quite as successful as the companion reproduction, two or three years ago, of the "Blenheim" Raphael, now in the National Gallery. Other most successful reproductions issued by this firm are those of Correggio's "Nativity" and Murillo's "Infant St. John," though these are on a smaller scale than the magnificent Raphael. Autograph cards, embossed in bronze and silver or in delicate tint designs, and pretty little booklets are also issued by Messrs. Raphael Tuck & Sons. Space will not allow us to more than briefly mention the cards, properly so called, issued by this firm; but we notice among them some pretty developments in the use of metallic colouring, and some quaint shapes such as shells, palettes, bells, and ovals. Eut all alike, whatever be the size or shape, are admirable in their colour and finish.

Milk Jelly.

The following recipe for making milk jelly, a diet for invalids, is given by a contemporary. Heat a quart of milk with a pound of sugar, and after the latter is dissolved, continue heating at a boiling temperature for ten minutes. Then cool it well and add, slowly stirring, a solution of one ounce of gelatine in a cupful of water. Next add the juice of three or four lemons, and three wine-glassfuls of wine, brandy, or other liquor. Stand the glasses containing the mixture in a cold place to set the jelly. The milk must be quite cold before the other ingredients are added, in case it should curdle.

The Excelsior Geyser.

The great Excelsior Geyser, of the Yellowstone Park, in the United States, is again active. It is situated in the middle geyser basin, close to Fire Hole River; its pit or crater being 320 feet long and 200 feet wide, the aperture or vent being about 200 feet in diameter. Since 1880 this geyser has been quiescent, the waters resembling a boiling spring. But this summer it has been spouting to heights of 100 to 300 feet, hurling up on the discharge stones and boulders weighing from 1 to 200 lbs. The Fire Hole River has, in consequence, risen two feet in level. The Excelsior Geyser is believed to be the most powerful yet discovered.

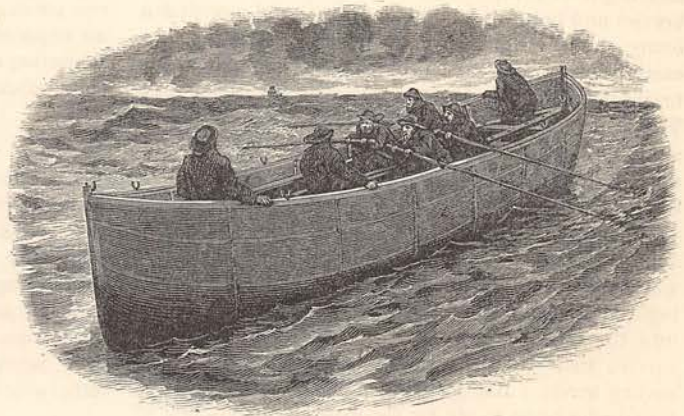
Safety Stirrups.

A new stirrup, which provides an absolute guarantee against being dragged, has recently been patented by Mr. P. G. Shadbolt. There is nothing peculiar in the appearance of these stirrups at first sight, but closer observation shows that the strap ring is fitted into a spring clip, which opens only laterally, and consequently is kept securely closed so long as the stirrup is perpendicular. But in the event of the rider being thrown, the strain on the stirrup, should the rider's foot remain in it, would at once release it from the strap, and so lessen the danger. This simple appliance seems to offer a ready means of safeguard in riding a horse that is at all likely to throw one.

A Nursery Yacht.



The woodcut illustrates a nursery boat or yacht for the use of children, which has been devised by Dr. C. R. Illingworth. It is broad in the middle, so as not to capsize, and the ends have projections which prevent its tilting too far. The motion is produced by means of ropes and pulleys, which the children work



A COLLAPSIBLE LIFEBOAT.

in the manner shown, and it is arranged that each child pulls on the opposite end of the boat, and thus has great purchase. Half a dozen can use it at once, and their safety can be further insured by strapping them in. The boat is likely to attract and amuse children more than the time-honoured rocking-horse.

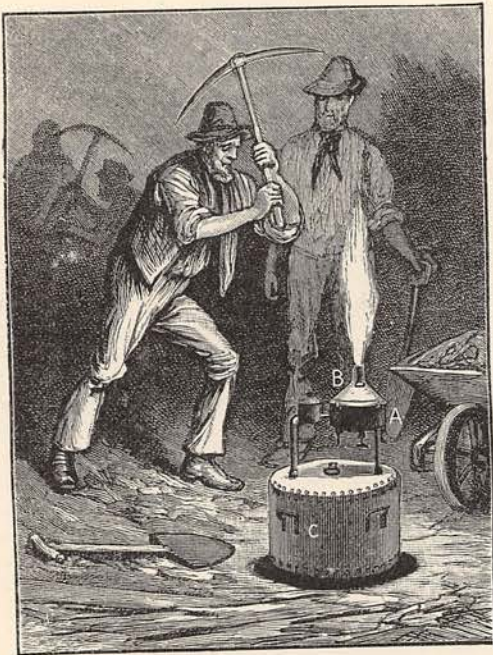
A Collapsible Lifeboat.

The illustration shows one of the collapsible lifeboats of Mr. J. W. Shepherd, recently exhibited at the Glasgow Exhibition. Its length is 28 feet, breadth $8\frac{1}{2}$ feet, depth $3\frac{1}{2}$ feet, weight 11 cwt. 2 qrs., and when folded up it occupies a space about $11\frac{1}{2}$ inches wide. Nevertheless, when expanded, it can carry sixty persons. Three of such boats could be packed under the ordinary lifeboat of a vessel hanging in the davits. The boats are very strongly built, the woodwork being lined with galvanised angle steel. The frame is covered with canvas coated with watertight composition, and in the bottom is a framework floor to walk upon. It should be mentioned that the Cunard Company have ordered several of these boats for trial.

A Singular Phenomenon.

A correspondent writes:—"I have been staying for a few days at Sutton-on-Sea, a small village on the Lincolnshire coast. On Friday morning last, September 14th, when walking along the shore, I noticed that the waves of the incoming tide, as they receded, left a loose, blackish, irregular line along the sands—a line pushed farther up as the tide advanced. It extended for the three or four hundred yards I examined, and probably much farther in either direction. On close inspection, it was found to consist of myriads of small brown-black beetles (weevils of the *Apionidae*, I think). Amongst them were scattered many butterflies and moths of the commoner kinds, and a few ladybirds. A singular feature of the case was that while the major part were dead, a large proportion were still living, showing their life by feeble motions, and those rescued and placed on a dry sur-

face began to creep about. But while I found living beetles and butterflies and ladybirds, I did not find a living moth. For two days before, a brisk south-easterly wind had been blowing, accompanied by bright sunshine during the days, and clear nights. This wind would, of course, blow from the coast stretching from Holland up to Denmark; and the tide, at that part of the Lincolnshire coast, sets in from about east-north-east. Supposing then that they were blown off, or were migrating from, the littoral countries of the German Ocean, as they doubtless were, and that their strength gave way before reaching the opposite shore, and they therefore dropped into the sea—the mystery is, how any at all should survive their thorough washing about in such crisp, curling waves. But so it was. I showed them to a friend who came to see me the same forenoon, and he was as surprised and as interested as I was.”



The Jupiter Light.

A new and powerful light for workshops and out-of-door operations is shown in our illustration. The "Jupiter" lamp consists of a shallow pan, A, having two funnel-shaped covers, B, over it; one of the funnels acting as the burner. Crude petroleum, creosote, or other cheap hydrocarbon oil, is contained in the pan at a constant level; the source of supply being the reservoir, C, below. To light the lamp a small quantity of spirit is poured on the oil in the pan, and kindled, and the funnel covers put on. By means of a small pipe, air at a pressure of 20 lbs. per square inch is admitted to the pan near the surface of the oil, and supports the combustion of the spirit. The inner funnel, or cone, gets red-hot and vaporises the oil, which ignites, and produces a bright jet of flame from 10 to 15 inches high, and 3 to 4 inches in

diameter. This flame induces a draught between the two cones, which thus supplies the greater part of the air required for combustion. There is said to be no scattering of oil drops or spray round this lamp, as in some others of the same sort.

Petroleum as Poison.

A German doctor reports that a form of skin disease exists amongst the working classes of the petroleum districts of America, which is traceable to the oil, and especially to the heavier oils. He also found that swallowing petroleum produced an affection of the stomach and kidneys, and hence he proposes to class petroleum as a poison. The inhalation of the vapour only seems to have a prejudicial effect on persons otherwise in feeble health.

For the New Year.

An unailing sign that the Old Year is dying is to be seen in the appearance of diaries and calendars "for the New Year." Among the first in the field are the well-known Letts's Diaries, now published by Messrs. Cassell & Co. Between the pretty and useful little "Waistcoat Pocket Diary," in its tasteful Russia case, three inches long and only a little more than an inch broad, to the large foolscap diary, interleaved with blotting paper, are many gradations of size and shape, but each is represented in this excellent series in a form alike durable and attractive. It would be impossible to refer to every one of these useful publications in detail, but among the most popular will certainly be the "Waistcoat Pocket Diary," the "Gentleman's Diary," and its companion volume, the "Ladies' Diary." The "Monthly Diary," where each month's entries are made in a separate part, to be carried in a wallet, is very handy; and the lettered box in which the parts are issued affords a ready method of filing them as they are done with. The "Clerical Tablet Diary," again, must prove eminently useful to those for whose use it has been specially designed.

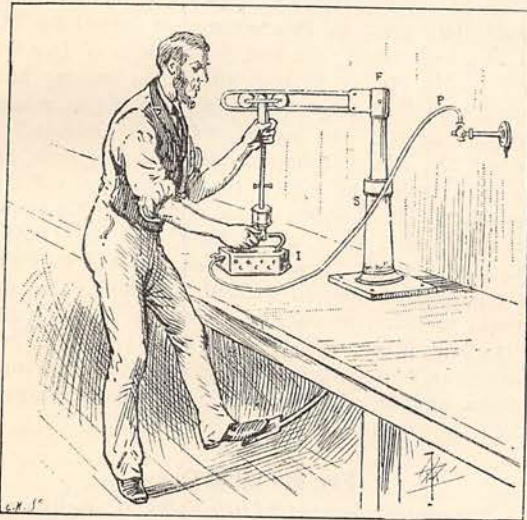
A Group of Novelties.

Two improvements in umbrella-making have recently been patented. The first is in the frame, where the "git," which holds the stretcher to the rib, is now being made of hardened and tempered steel instead of soft iron, while at the same time the fork end of the stretcher, by which it is connected with the rib, is narrowed somewhat, the result being that when the umbrella is folded it is practically impossible to distinguish any "knee," and at the same time a stronger joint is formed. These new frames are not only very light, but also very durable. The second improvement is in the ferrule, where a hard india-rubber tip has been introduced, with the effect of saving the frame from jarring, and at the same time rendering the umbrella noiseless, when used for a walking-stick. —A "Dinnerette" is the name given to a new mat which has lately been devised for the use of children at table. The mat really consists of a prettily designed piece of American cloth inscribed with a

suitable motto, and decorated with a little picture likely to please children at first. Its use should certainly save the table-cloths, and that we believe is its object.—Some chemically prepared wicks are now being made for use in all kinds of oil lamps. The method of their preparation is not made public, but the form in which they are sent out, ready cut in lengths for use, is certainly an improvement on the old-fashioned method. It is claimed for these new wicks that their burning quality is thirty per cent. higher than that of the ordinary wicks.

An Ironing Machine.

The engraving represents an ironing machine, that consists of a flat-iron, I, heated by gas conveyed to the burner by the flexible rubber pipe, P. The iron can be moved in every direction by the operator, as



shown, and the requisite pressure is applied by means of his foot bearing on a treadle under the table. The frame, F, which supports the iron, is fitted in a spring socket, S, allowing the tool to be raised or lowered, and the wheels in the bracket allow it to slide to and fro. The machine packs into a space of 24 inches by 12 inches, and weighs only 250 lbs. The iron does not consume more than six cubic feet of gas per hour. The pressure brought to bear on the iron can be varied from 1 lb. to 300 lbs.

A Pneumatic Gun.

Trials have recently taken place, in New York Harbour, of a pneumatic gun made by M. Zalinski for the Italian Government. The gun is forty feet long, and made of cast iron in sections. The mechanism for pointing is worked by hydraulic power. The shells are six feet long, and contain 600 lbs. of explosive gelatine. They have iron wings, and are capable of travelling two miles. The range is controlled by varying the air pressure which propels the

shell. Three of these guns are, it is stated, to form the armament of the *Vesuvius*, a new vessel built for the United States Government at Philadelphia.

A Curtain Stretcher.

This new stretcher consists of a light wooden frame easily taken to pieces and packed away in a small compass, but which fits together to provide a ready means of tightly stretching curtains at home quite as well as they can be done by professed cleaners. The construction is extremely simple, and there is nothing about the apparatus calculated to tear the curtains, provided, of course, that ordinary care is exercised in its use. A great advantage attaching to the employment of this apparatus is that irons are unnecessary.

Free Libraries, and How to Procure Them.

Nothing in the progress we have made in the last half-century has been more remarkable than our advance, as a nation, in the number and value of the public libraries open to rich and poor alike, free of direct charge. No doubt this advance has been due to some extent to private munificence, but the working of the Free Libraries Acts has certainly given a great impetus to the movement. Of late years Mr. Thomas Greenwood, F.R.G.S., has devoted much of his leisure to the consideration of this question, and the best means of furthering it. The result of his experience he gives us in "Free Public Libraries" (Simpkin, Marshall, & Co.), and the work is one that we can heartily commend to any of our readers who may be interested in the extension of facilities for the spread of pure and wholesome literature. Hints as to the organisation, fitting up, arranging, and working of large or small libraries will be found here, as well as useful statistics of the work already done in this direction. Mr. Greenwood is also the author of a companion work on "Museums and Art Galleries" (same publishers), in which he deals with his new topic in the same practical and helpful manner, describing what has been done, and showing what is yet to be accomplished.

Some Christmas Books.

In the preparation of books for Christmas gifts, our well-known contributor, Mr. F. E. Weatherly, is to the fore as usual. Messrs. Hildesheimer & Faulkner have issued three from his pen, entitled "Nursery Land," "Sunbeams," and "The Good Shepherd." It is hard to say whether words or pictures are more pleasing in these tasteful little volumes, both are so excellent. The same publishers are responsible for quite a number of little booklets got up in exquisite taste, with every advantage of colour and good workmanship. Perhaps the prettiest is "The Honeymoon" to which Mr. Weatherly again supplies the verse, and Mr. Yeend King and Miss Alice West the illustrations. Another and more ambitious undertaking is an illustrated version of "Here's to the Maiden of Bashful Fifteen," illustrated by Alice Havers and Ernest Wilson, which is a really attractive rendering of the fine old song.