

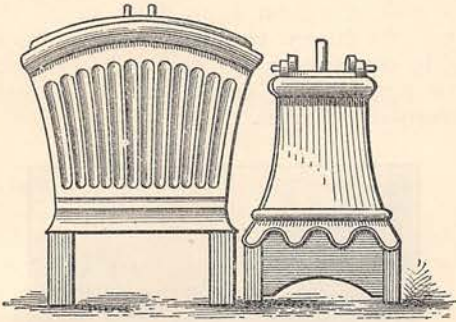
## THE GATHERER:

AN ILLUSTRATED RECORD OF INVENTION, DISCOVERY, 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.

**An Open Anthracite Grate.**

The device which we illustrate in front and side views is a chamber of fire-clay or cast metal, which is



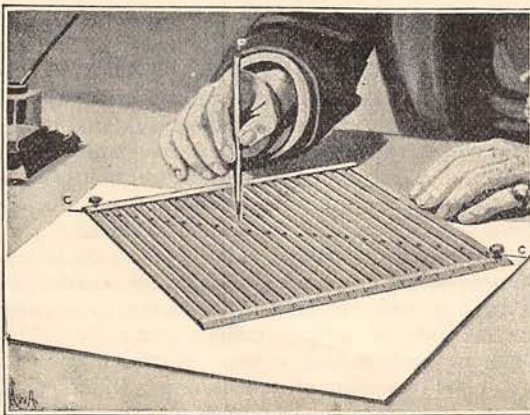
opened or closed by a semicircular valve. It is simply placed in the back of an ordinary grate, and the fire of anthracite is lighted in the usual way. When the chamber becomes hot, the valve opens and a draught is produced of sufficient strength to completely burn the anthracite.

**Ammonia as a Germicide.**

Herr Rigler, a German investigator, has recently found that ammonia gas is able to destroy the bacillus of typhoid, cholera, diphtheria, and anthrax in a few hours, and he strongly recommends it as a disinfectant. We may add that a French *savant* has succeeded in cultivating the cholera germ in a form which adapts it for vaccination.

**A Rapid Line Divider.**

Our illustration shows a French device for subdividing lines. It consists of a jointed parallelogram,



in the interior of which and parallel to one side are a number of small rules, at equal distances apart and jointed at their ends. Each rule is perforated with a row of holes through which a pencil point, *p*, can pass and mark the paper underneath. In order to divide a line into a number of equal parts, the zero of the divider is placed at one end of the line, and the aperture marked is brought to the other end. The pencil then marks the division of the line.

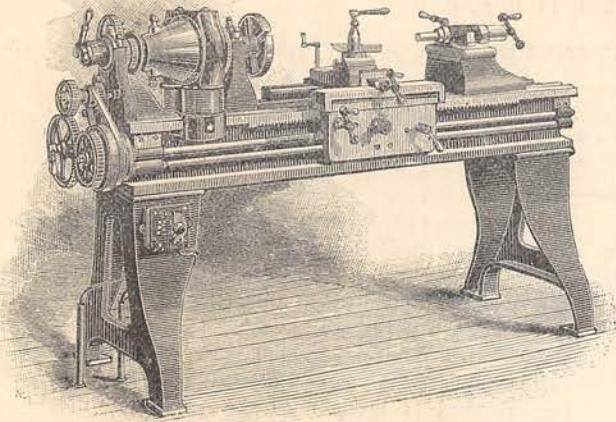
**A Strange Breeding Place.**

A correspondent, who kindly placed the material for our illustration at the disposal of the editor, sends us the following account of the creatures depicted: "On



A, Bottle in which these little creatures bred; *a*, colony of *Lacinularia*; *b*, colony of *Cordylophora*, both settled on the inside of the bottle; *c*, *Cordylophora*; and *b*, *Lacinularia* (both greatly enlarged).

June 28th, the bottle was received from a Fellow of the Royal Microscopical Society residing at Chester. It then contained a colony of *Cordylophora pacustris*, the only branched hydrozoan known from fresh water, and two colonies of the social Rotifer *Lacinularia socialis*, all taken from the Dee. As it was impossible from want of time to examine these creatures, one colony of the Rotifers was given to a friend, and the bottle with its contents was lowered into a bell-glass aquarium. Within a week the Rotifers had multiplied so that it was possible to give three colonies—on the leaves of the Canadian Pond Weed—to a student of the Biological Classes at Toynbee Hall. They are still multiplying, not only on the weed but on the inside



AN ELECTRIC LATHE.

of the aquarium. Two colonies started on the inside of the bottle itself (though only one is shown), and the *Cordylophora* bred in the same situation. The latter rarely breeds in confinement, though it lives well in the aquarium, and increases—somewhat like a strawberry plant—by sending out additions to the creeping rootstock; from which buds arise. Two heads, or hydranths, are shown in the picture; their only office is to capture food for and supply nourishment to the colony by means of the tentacles armed with thread cells, like those of the common hydra and jelly-fish. These are stinging organs and serve to paralyse their prey, which is then drawn close to the mouth, and engulfed in the jelly-like mass. Below, to the right is a gonophore or capsule containing reproductive elements. The eggs and sperms are borne on different colonies; the former are fertilised in the water, and the embryo, known as a planule, resembles an Infusorian in shape. It has a short, free-swimming existence, and then fixing itself to some object, settles down, and becomes the starting point of a colony."

#### An Electric Lathe.

In the power lathe which we illustrate herewith the electric motor is grafted into the machine itself instead of being geared to it. The revolving armature of a Crocker-Wheeler motor takes the place of the ordinary speed cone, and a controlling switch enables the speed to be regulated. Electric motors thus adapted to the lathe or other machine tool of the kind are promising to do good service, especially in driving milling and polishing machines.

#### A New Tree Snake.

In the last case on the left-hand side in the Reptile House in the Zoological Gardens, Regent's Park, the visitor may see a tree snake (*Dipsas cenchoa*), a species exhibited for the first time in England. It is a native of Trinidad, and nocturnal in habits, passing the day coiled up among the branches of a tree, and coming out of its resting-place at night to look for birds' eggs,

insects, frogs, and mice. The body is compressed and very slender, the tail extremely thin, the head large and distinct from the neck, so as to give the animal the appearance of a venomous snake. And so, indeed, it is; though the grooved teeth are so small and the venom so weak that its bite is not harmful to the larger mammals, and in captivity the snakes may be freely handled. The general colouration is whitish, marked with brown, transverse, lozenge-shaped bands. When held to be photographed it made no attempt to bite, though it struggled so violently to regain its liberty as to make it rather difficult to keep it in position without doing injury to the slender body, the extreme tenuity of which may be judged of by comparing it with the fingers of the hand in our picture. The total length of the snake is twenty-seven inches.



A NEW TREE SNAKE.

#### A Loud Home Telephone.

A telephone which really talks loud enough to be heard throughout a large room, has been invented by Mr. Graham. The apparatus is of the usual sort, but improved. There is a microphone transmitter and a bell magnetic receiver with a trumpet mouth. But the induction coil is dispensed with and two lines are employed, one for each correspondent, with a return wire common to both. By this arrangement the transmitter of correspondent A is directly in circuit with the receiver of correspondent B, and the transmitter of B with the receiver of A. The transmitter, T, and the receiver, R, are shown in Fig. 1, and again in Fig. 2, which represents another set of the apparatus. The transmitter is attached by flexible conductors to the line, and on pressing a button in its end one has only to speak into its mouthpiece. The words are spoken loud enough at the other end to call the attention of the correspondent there if he is anywhere near, and he replies by speaking into

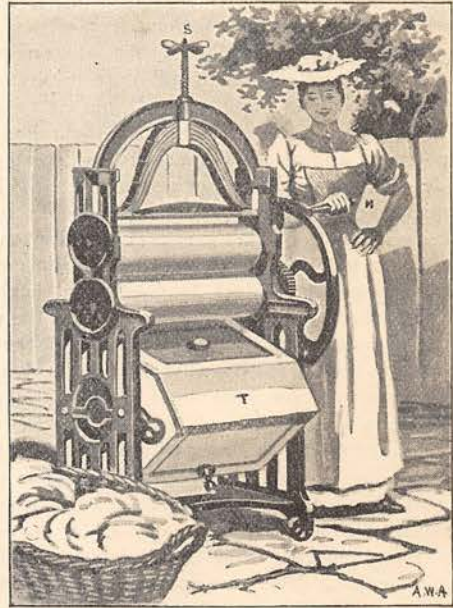
his transmitter in the same way. There is no listening with a receiver, or perhaps two, held to one's head, and this allows of considerable freedom of action. Of course, the transmitter can be fixed in a particular place if desired, and a call-bell added. The new telephone is principally intended for what we may call "home" or private use. It will enable persons in different rooms of a house or departments of a manufactory to speak freely, as with speaking tubes, and it will be especially useful in country residences or farms, and on board ship. To this end Mr. Graham has devised a switchboard or small exchange, by which a person can converse with any room or department of an establishment. The switchboard is seen at S on the right of Fig. 1, and is easily manipulated. Mr. Graham further proposes to fit his telephone into the helmet of the diver. We may also mention here that a "telephone meter" has been introduced into the German telephone service. It consists essentially of a clock having a pendulum, which is caught by a lever connected to the hook lever of the telephone and thereby stopped as long as the telephone is in use. When the clock runs down it locks the telephone switch automatically and operates a small signal disc. The clock must be wound up again before the telephone can be switched on the line.

**A Spray Washer.**

This useful appliance is really a combined washer, wringer and mangle, in a highly convenient shape.

The tub, T, or box in which the clothes are washed, is pivoted in such a way

as to rock like a cradle when the handle, H, is continuously turned, and very little force is required to keep it going. There is a number of wooden teeth or pegs in the bottom of the tub, which permit of the water circulating, and the spray is dashed

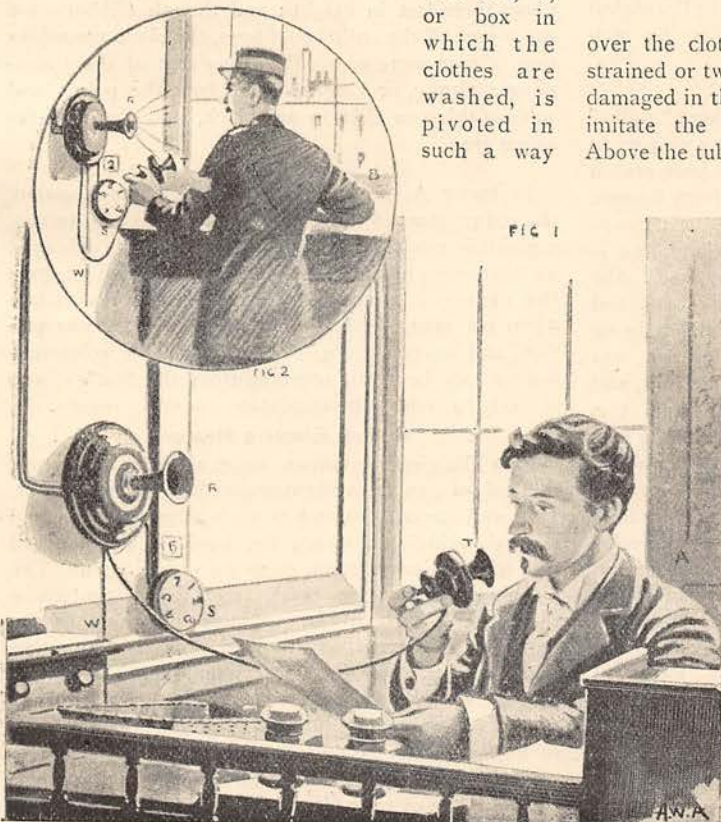


A SPRAY WASHER.

over the clothes from above. The fabrics are not strained or twisted, and even delicate muslins are not damaged in the process. In fact, the washer seems to imitate the handwashing of clothes in a stream. Above the tub are two rollers, whose pressure can be adjusted by the screw, S, and the clothes wrung as they are taken from the wash. Two removable boards fit into the frame above the tub when the rollers are employed as a mangle. The machine, which is compact and easily repaired, is made in four sizes for domestic use, but the 24-in. size is recommended for average families, and the 27-in. size for large families or hotels.

**A Collection of Novelties.**

It is a truism that those inventions which most conduce to the comfort of life—and especially is this true of home life—are not always those of which most is heard, or of which science takes the closest ken. We have before us this month a collection of household novelties, every one of which marks an advance in convenience, in economy, or in safety. First let us look at an improvement,



A LOUD HOME TELEPHONE.

known as the "Perfect," in candles, candlesticks, and candleholders. The wick is carried out beyond the bottom of the candle, the loose end is threaded through a hole in an upper cup pivoted on the cup of the candlestick or holder, and securely gripped by the mere turning of this upper cup round upon the lower one. The result is a candle which may safely be carried anywhere without fear of accident, and which is specially adapted for use on piano brackets or sconces.—Brush handles are things which are given to become loose and fall out at very inconvenient times. A new fastener for them has just been patented, and consists of a metal socket which is either let into the brush head or screwed over the hole, and whichever form is used, the handle is held securely by the screw thread inside the socket. And when the brush is worn out the socket can easily be unscrewed and replaced on a new brush head.—A new buckle for straps and other small leather work is one of the most recent inventions patented. In this new buckle the customary tag of leather is dispensed with, and its place is taken by a prolongation of the metal which holds the pin in position, to form a plate which is flanked on either side by pointed prongs that are easily thrust through the leather or other material on which the buckle is to be fixed, and when once these prongs are bent down no firmer or neater buckle could be found.—A combined cullender and potato-masher is the latest novelty in domestic utensils. The lower part of the cullender is made much larger than usual and fitted with a good strainer grating. Through this, by inverting the utensil over a dish, potatoes can very readily be well mashed.

#### A Stranger from Borneo.

In the house near the kangaroo dens, where "Sally," the famous Chimpanzee, attracted so many visitors to the Zoological Gardens, there has recently been placed a new female Gibbon (*Hylobates mülleri*) from Borneo. She is not only the first of her species—or perhaps one should write variety—to visit England, but is probably the only Gibbon ever photographed. She could not be induced to "sit" for her likeness, and her extreme shyness and timidity precluded her being taken out of the cage; so that her attention was attracted for a moment by the offer of some fruit, and in that moment the camera did its work. And it is well done. Besides giving a good likeness of the new arrival, it shows distinctly one of the chief characteristics of the Gibbons, or Long-armed Apes—the extraordinary length of the arms, which, when the animal stands erect, reach to the ground; and some species are said to be able to place the palm flat on the ground without stooping. Gibbons have their home in South-East Asia and the Malay Archipelago, and are the only monkeys that habitually assume an erect position when walking. They live chiefly among the forests of that region, swinging themselves from branch to branch by their long arms, often taking a complete turn in their swing. They feed on fruit, insects, spiders, eggs, and young birds, and are gentle in disposition, soon becoming attached to those who have charge. Full-grown specimens of the largest kind are



THE MAN-LIKE APE.  
(From a photograph from life.)

about three feet in height; and though Gibbons are the lowest of the anthropoid apes, the skull resembles that of man more nearly than does that of the Chimpanzee, Orang, or Gorilla. The face, the palms and soles of this new Gibbon are black, and the long fur ashen grey.

#### Turacin.

Professor A. H. Church, who discovered turacin, the red pigment in the wing feathers of the bird turaco, a plantain-eater allied to the cuckoo, recently delivered an interesting lecture on the subject, in which he gave the chemical compositions of the colour as carbon 53.69 per cent., hydrogen 4.6, copper 7.01, nitrogen 6.96, and oxygen 27.74. This remarkable colouring-matter can be easily removed from the feathers and is likely to yield some important chemical results.

#### A New Electric Heater.

Two Belgian scientists have discovered a new method of generating heat from the electric current. It is well known that when such a current is passed through acidulated water, the liquid is decomposed into its constituent gases, oxygen and hydrogen. The oxygen collects on the lead lining of the vat containing the water to which the negative electrode of the current is connected, and the hydrogen collects round a bar of metal, say iron or copper, which is plunged into the water and connected to the positive electrode of the current. Now the hydrogen gas forms a layer of high resistance round the rod, and the current in overcoming it generates heat sufficient to melt the bar. Thus a piece of metal is quickly brought to incandescence and even fused in the middle of cold water.