

## Inventions.

### AN INGENIOUS WINDOW FASTENER.

Sanitary science of the present day demands the free admission of air to every room of a house, and it is a recommendation of medical men and health officers that windows should never be closed by night or day. Unfortunately, an open window offers particular allurements to members of the burglarious fraternity.

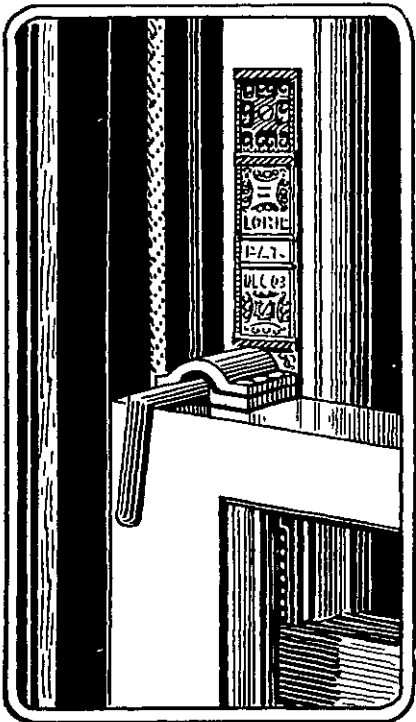
A fastener by which a window can be secured when closed, or, when open, sufficiently for ventilation purposes, should command a large sale.

The Lorie fastener, which has been in use for two or three years, is said to give highly satisfactory results. It is made in a number of styles to suit various tastes, and may be obtained in brass, plated metal, or steel.

Our illustration shows a simple type of the fastener, and it will be seen that a metal plate having a roughened surface is fixed upon the side of the upper sash of the window, while a bracket is fixed upon the upper part of the lower sash directly opposite to the plate. This bracket is screw-threaded, and through it passes a screw locking-bolt which has a cranked handle by which it may be readily turned. By turning this crank handle through part of a revolution the end of the locking bolt is forced against the face of the plate, so that the two sashes are safely locked together, and neither of them can move up or down, the locking being effected when the top and bottom sashes (or either of them) are open or closed.

This simple arrangement is sold for a few pence, and can be affixed by means of ordinary wood screws to any window in a few minutes.

For windows placed at a height above ground so that it is difficult to reach the fastening, an ingenious arrangement is adopted, consisting of a coil spring, which always tends to turn and screw the locking-bolt into contact with the plate from the opposing sash. The cranked handle is sub-



LORIE WINDOW FASTENER.

stituted by a pulley around which passes an operating chain, and by means of which the bolt may be revolved to unlock the window when desired. An additional safety catch can be employed with another type of the Lorie fastener. This consists of a hook which is pivoted upon the window frame in such position that when both sashes are closed the hook slips over the end of the locking bolt and prevents either of the sashes from being opened until the hook is released.

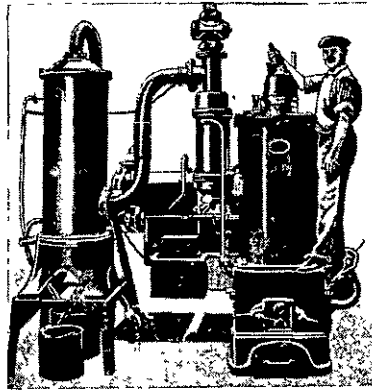
An interesting pamphlet, dealing with the merits of the Lorie fastener, has been published by Messrs. Sargood, Son & Ewen, who are the wholesale distributing agents for New Zealand.

The best biographies are those on two feet. Even if you are only five feet high, stand up straight.

### THE TAYLOR GAS PRODUCER.

From time to time reference has been made in our columns to the great economy resulting from the use of producer gas and gas engines. The Taylor gas producer has found considerable favour with power users, on account of its ease of management and low cost of running. The Taylor plant consists of a generator, washer, expansion box and vaporiser, which are so compactly arranged that the plant for a 14-b.h.p. engine occupies a ground space of only 6 sq. ft. Any gas or oil engine can be utilised with the Taylor producer, the action of which is as follows:—

The suction of the engine piston draws air and steam through a mass of incandescent coal nuts in the generator, and the gas thus formed is purified by passing it through coke sprayed by a jet of



TAYLOR GAS PRODUCER.

water within the washer. The gas then passes through the expansion box, and from there direct to the engine.

The indescribably small amount of steam necessary is supplied by the vaporiser, through which the products of combustion from the coal immediately pass after leaving the furnace.

Messrs. Sargood, Son & Ewen have recently erected a Taylor gas producer in their Dunedin factory, where it drives a 26-35-b.h.p. Otto gas engine, and is giving the greatest satisfaction, and which they will be very pleased to show to those interested.

Carefully prepared tests show that the consumption of coal is 1,100 lbs. in a working week of 45 hours, which, allowing a half hour per day for lighting and starting, equals 48 hours running; this represents a consumption of about two tons of coal per month. It will be obvious that even with the most costly coal procurable enormous saving is effected over the use of town gas.

The plant consumes its own smoke and does not require any chimney, and, as the gas is produced under atmospheric pressure, in only the required quantity, and immediately before it is consumed, there is no danger of explosion.

Our illustration shows a plant such as is in use at Messrs. Sargood's factory in Dunedin. Upon the left hand is shown the washer in which the purification of the gas is effected; in the centre is the vaporiser which supplies the small quantity of steam to the generator which is necessary in the purification of the gas; and upon the right hand is the generator to which the attendant is supplying coal through the hopper at the top. This hopper is automatically closed by a bell valve, so that there is no danger of escape of gas.

### Rescue Work in Colliery Disasters.

#### LIFE-SAVING APPARATUS WANTED FOR BRITISH MINES.

THE catastrophe in the French colliery of Courrières, in which twelve hundred lives were lost, has drawn attention to the equipment of search parties who bravely descend to explore the mines on such ghastly occasions. Germany sent to the scene of this disaster a life-saving corps of Westphalian colliers, equipped with oxygen-breathing apparatus. The present German Emperor, notoriously alert to advanced ideas in every field of endeavour, as long ago as the year 1890 expressed to his Minister of Public Works his desire "to see the State mines develop into pattern institutions in respect of care for the workers." In this particular matter of the rescue of imprisoned miners Germany is ahead, not only of France, but also of England, for all German collieries are provided with the oxygen-breathing apparatus, in the proportion of one set to every twenty miners.

To quote from a writer in the London *Daily News*, in England it often happens that rescuers have to stand at the mouth of the pit helpless, because "Englishmen are still content to depend on their native pluck and physical endurance, and Parliament has not yet seen fit to order, as the German Government has, that miners shall have the advantage of all the protections which science puts at their service." It is to be hoped that the admirable action of Germany in sending the life-saving detachment to the aid of the French miners may help to fix attention upon the need for similar apparatus becoming a necessary part of the equipment of every pit in Great Britain.

Our illustration of the apparatus is given by courtesy of Messrs. Siebe, Gorman and Co., the well-known submarine engineers. It is interesting to note that they are the original manufacturers of the self-contained breathing apparatus using compressed oxygen with caustic soda, the latter for absorbing the carbonic acid, and all apparatus of this description—German or otherwise—is on their principle. The entire weight of the apparatus is under 20 lb. The great point about it for rescue work in a mine is that the wearer is quite independent of any connection with the outer atmosphere, and can go where he will. He breathes into a bag fastened in front of him, in which a supply of caustic soda absorbs all the carbon dioxide from his breath, and the nitrogen left he can reoxygenate from the cylinder of compressed oxygen behind him just as he feels the need.



HOW THE MEMBERS OF THE GERMAN RESCUE PARTY WERE EQUIPPED.

A Soft rubber mask; C Regulating valve; D Bag for caustic soda; E Air tubes; F Oxygen chamber.

### Patrol Fire Extinguisher.

We have received from Messrs. James Gilbert & Co., the following particulars of the Patrol fire extinguisher:—

The Patrol fire extinguisher consists of a copper cylinder 21½ inches in height and 7 inches in diameter, filled nearly to the top with water. Into this water is mixed 1½ pounds of bi-carbonate of soda. In the head of the extinguisher, which is detachable, is a brass cage containing a bottle half full of sulphuric acid (four fluid ounces). The acid bottle is closed by a loose lead stopper. To discharge, the extinguisher is inverted. The lead stopper at once drops from the bottle, the sulphuric acid mixes with the soda solution and a large volume of carbonic acid gas is formed.

This gas creates a pressure sufficient to throw a stream of the chemical fifty feet. The chemical stream acts as a blanket and smothers fire which water cannot reach, between partitions, in the chimney, under the eaves, etc. The stream from the Patrol is said to instantly put out an oil, naphtha or gasoline fire. Water will only spread such a blaze. A chemically charged stream is said to be forty times as effective as water.

Insurance statistics show that ninety per cent. of all fires are discovered in their incipency; in other words, if means were at hand for extinguishing them, nine out of ten fires could be put out as soon as discovered. Insurance statistics also show that eighty per cent. of all fires are put out by chemical streams.