

INDOOR BED TENTS.

BY KATHERINE LOUISE SMITH.

Fresh air at night and plenty of it is the cry that is going up among those who are determined to subdue the "Great White Plague," and with these persons it has become more than a fad, a necessity. Those who have resolved to abstain from kissing even their nearest and best, are now either seeking some practical method of sleeping out of doors, or planning some device whereby a good supply of fresh air may be obtained in warm bedrooms. Many persons are building screened porch bedrooms just outside of the sleeping rooms, where they can sleep in the patent sleeping bags that leave only the head exposed and that come with pockets for holding the hands. These persons dress and undress indoors, and jump into their twenty-dollar sleeping bag after adjusting a warm hood and muffler. But though the muffler can be drawn over the head so that only the eyes are exposed, and though it is made of heavy wool and elastic, there is in this outdoor sleeping bag danger of catching cold between the warm room and the outside bed.

So these fresh-air enthusiasts are casting about for some method that shall keep the body warm, the head exposed to the fresh air, and the bed adjusted in such a way that undressing and passing to the bed can be conducted in a warm room. To fill this need several devices have been invented, but they all fall under two heads—one where the person sleeps with his head out of the window, and the other where the bed is rolled to the open window, and a tent employed to drop over the sleeper's bed.

The cost of the ordinary window bed is moderate. It can easily be made by any carpenter, as it is constructed of an ordinary hospital bed with the legs adjusted eighteen inches from the end. These are just long enough to raise the bed so it can go over the sill. The head of the bed at night is thrust through the window, the sleeper creeps into the bed with his head outside the window and draws an awning down over his head, which protects him from inclement weather and at the same time does not exclude the air. A wide strip of felt is fastened to the lower sash of the window, to keep the air out of the room. In this way the sleeper has his head outdoors and his body under the bed clothes in a warm, heated room. There are, however, two objections to this bed, though it is so simple it can be made at home. These are that in cases where it protrudes through a window above the first floor, there is often the uncomfortable sensation that one may fall, and the other is that the bed shows from the outside of the dwelling.

For these reasons many persons are using the new fresh-air tents which are fastened inside the window. While several varieties are made, they all involve similar principles of construction, and they have the merit of not being conspicuous. In using the window tent, the side of the bed near the top is placed next to the open window. The tent, which is made of heavy canvas or awning cloth, comes down from the inside of the window over the side of the bed and over the pillow. It reaches to the middle sash, and can be adjusted by tightening a screw, and is capable of being moved from one window to another. With the head once under the tent, one can actually breathe the fresh air from the window, while the rest of the body is in the bed covered by the bed clothes and in a warm room.

These tents have become popular, for they are large enough so that the face can be close to the window or on the pillow and three feet back. A little celluloid window in the side of the tent next to the room allows the user to look out and to converse with those

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AN EMERGENCY OXYGEN CUP FOR MINERS.

BY FREDERIC B. HYDE.

Clarence Hall, explosives expert for the government, has just announced the invention of a safety device which, had it been in use a few weeks ago, might have saved hundreds of lives at the mine of the St. Paul Coal Company at Cherry, Ill. The device is a simple appliance, which generates sufficient oxygen to sustain life for a half hour or so under any conditions of atmosphere. Had the miners who died in the recent disaster been supplied with this apparatus, the densest of a tmospheric tirely devoid would not them. They been enabled alive until oxygen was

The newly-generated generator a lease of time ranging an hour to while a man way to the awaiting the rescuers. The was made by while in the service.

ner in which hit upon the plying oxy-tombd miner the extreme. lighting the a u t o m o b i l e , thought oc-him of gen-gen as the

lamp were generated, and supplying that oxygen to miners to breathe when the air of the mine had become so contaminated with poisonous gases and smoke as to spell immediate death. Accordingly he made a device which consists of a water chamber, and below it a compartment filled with sodium peroxide. In an emergency, a stopcock is touched, and the water comes in contact with the chemical. The oxygen is generated. This is passed through the water, which cools it. Then it passes to the mouth and nose by means of a mask, such as is fitted to the face when gas is ordinarily administered by a dentist. Thus may oxygen be supplied that will keep a man going for half an hour while he fights his way out of a mine filled with gas or smoke.

Mr. Hall as a representative of the government studied many of the great disasters in mines that have occurred in recent years. At Mononga, where more than three hundred men lost their lives in December, 1907, he found that the vast majority of the men had died by slow suffocation long after the explosion. Many of these had crawled for great distances on their hands and knees, for the miner knows that the best air is near the ground. Their trousers were worn through at the knees, and their blood marked their trails. Their fingers were worn through to the bone from crawling.

Of all men who die in mines, ninety per cent meet death through suffocation. There are in the United States 700,000 men who work in coal mines. Many of these are daily subjected to the danger of suffocation. Every year 4,000 of them go to their deaths in this way. The ordinary safety devices are expensive. The

men cannot have them always at hand, even if they could afford the expense.

The new device can be slipped into the coat pocket, and kept with the coat and lunch basket, always within reach.

Mr. Hall is in charge of the explosives station in Pittsburg, recently described in the SCIENTIFIC AMERICAN SUPPLEMENT. That station, it will be remembered, has a large chamber in which all sorts of poisonous gases may be confined and into which men are sent to demonstrate various appliances. Various kinds of oxygen helmets which will keep a man going for two hours were tried out here.

In this demonstration chamber Mr. Hall burned excelsior in the chamber until the smoke was so thick that the eye could not see four inches through it. Then he donned his oxygen-producing device and went in. He remained here quite comfortably for fifteen minutes. Then the smoke pained his eyes and drove him out. The device continued to generate oxygen, and other men entered the chamber with entire safety for more than half an hour.

A New Chromatic Circle.

The principal purpose of a chromatic circle is to show the true complementary color corresponding to any given tint. Rosenstiehl has attempted to correct the old error of regarding red and green, yellow and violet, blue and orange, as pairs of complementary colors. These false notions were introduced by Robert Waring Darwin at the close of the eighteenth century. They have been perpetuated by the chromatic circle used in the Gobelins tapestry manufactory and popularized by a lithographic copy of that circle, made in 1861, which is the only document at the disposal of French artist-artisans.

Rosenstiehl's experiments show: First, that the true complementaries of red and orange are not green and blue, but two tints near together in the green-blue region; second, that the complementary of yellow is not violet, but blue; third, that violet is the true complementary of green. The differences between the true complementaries and the false complementaries of Darwin are sufficiently great to warrant the construction of a new chromatic circle. Rosenstiehl's circle comprises twenty-four colors, which form twelve exactly complementary pairs. A neutral gray is produced by the rotation of a disk, half of which is covered with each color of any pair of complementaries, and all the grays thus obtained are very nearly identical. This condition, very difficult to realize in practice, implies not only equal intensities of the two colors of a pair, but sensibly equal intensities of all the colors. The result is in accordance with the Young-Helmholtz theory of the three fundamental color sensations.

The first bituminous coal mined in the United States, states the United States Geological Survey, was taken from what is usually termed the Richmond Basin, a small area in the southeastern portion of Virginia, near the city of Richmond. This basin is situated on the eastern margin of the Piedmont Plateau, 13 miles above tide water, on James River. It lies in Goochland, Henrico, Powhatan, and Chesterfield counties. The coal beds are much distorted, and the coal is of rather low grade when compared with that from other districts with which it has to come into competition. The occurrence of coal was known in the Richmond Basin as early as 1700, and in 1789 shipments were made to some of the Northern States. In 1822 the production amounted to 48,215 gross tons. At present what little coal is produced in this field is for local consumption only.



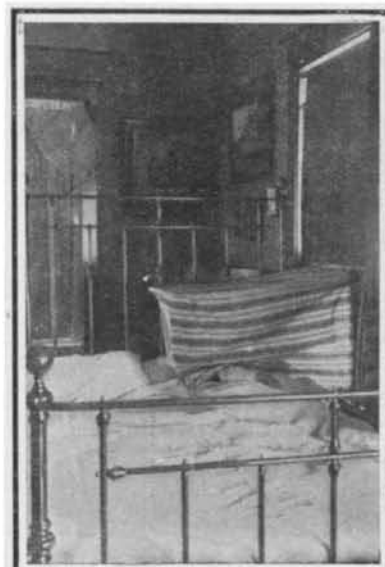
MINER'S EMERGENCY OXYGEN OUTFIT.



Storm awning raised, showing the sleeper in the indoor bed tent.



The storm awning outside the window.



The window sleeping tent in use.



Sleeping hood to protect the head from cold.