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SCIENCE

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A WEEKLY NEWSPAPER OF ALL THE ARTS AND SCIENCES.

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NEW YORK, NOVEMBER 8, 1889.

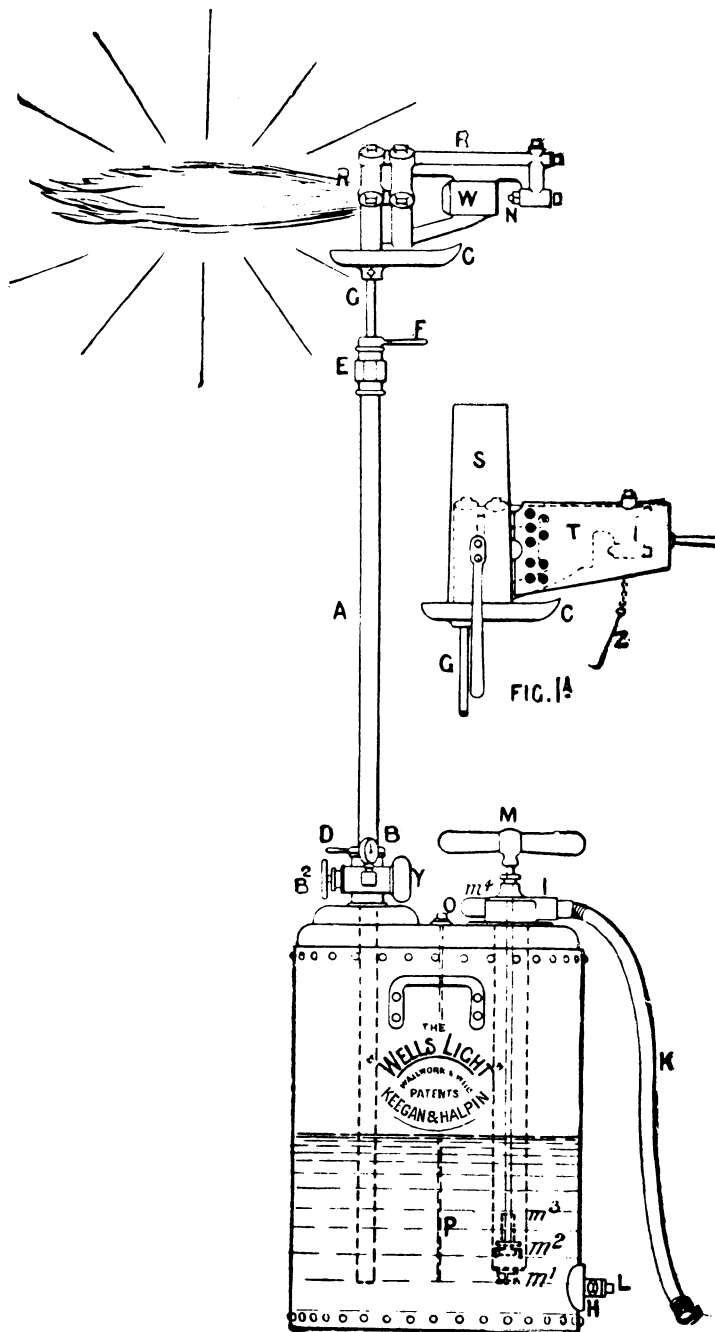
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THE WELLS LIGHT.

MANY of our readers may be familiar with the old form of a self-acting blast-lamp, for the use of alcohol, in which the alcohol was first vaporized by the heat of the lamp itself, and then this vapor, escaping under pressure, was burned. The object in this old lamp was to produce a high degree of heat. The object in the lamp we describe to-day is to produce a large amount of light.

The tank *P* contains kerosene, which is forced in by the pump till a pressure of about twenty pounds above that of the atmosphere is produced. This pressure forces the oil up through the piping *R*, surrounding the flame, in which piping it becomes vaporized; the vapor escaping under the pressure at *W*, and burning with a brilliant flame, as shown.

The flame is about two feet long, and is said to burn well un-



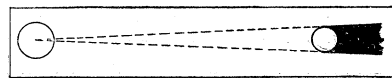
protected except when a high wind is blowing, when a wind-protector provided with the lamp allows all to go on well once more.

It will be apparent that a preliminary warming-up is necessary, to bring the piping around the flame to the proper temperature,

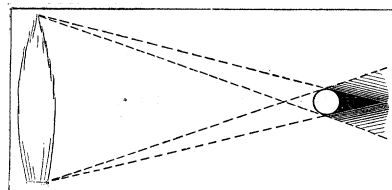
before this lamp can be lighted. This is done by burning a little oil in the dish *C* under the burner, or by a special lighting contrivance which brings a hot flame to bear on the vaporizing parts of the apparatus. As the lamp is primarily intended for out-door illumination, even the use of the oil in the cup is unobjectionable.

While this warming-up is in progress, the burner is covered with a sheet-iron hood, to confine the heat.

We have referred occasionally to the Manchester Ship Canal that is to make Manchester, England, a seaport. We now learn that these Wells lights are used for the night-work, and understand that their portability and large flames, rendering shadows less sharply marked, have caused them to be looked on with favor.



SHADOW FROM ARC-LIGHT.



SHADOW FROM OIL-FLAME.

The effect of the large flame of this oil-light in doing away with the black shadows which are found so objectionable when an electric arc-light is used is illustrated in the accompanying diagrams.

CERTAIN PROVISIONS OF CONTINENTAL LEGISLATION CONCERNING FOOD ADULTERATION.¹

DURING the past year I have had occasion to look up the subject of the laws and regulations now in force in European countries in reference to the sale of unwholesome or falsified foods, and believe that a brief *résumé* of certain provisions of such legislation may not be uninteresting to the members of this association.

To attempt to summarize what has been done in each country involves more or less of a review of its police administration, which would make this paper too long. Copies of these foreign laws, decrees, and regulations, and a list of our State laws on the adulteration of food and drugs, dairy products, and butter substitutes, will be found in the reports of the commissioner of internal revenue for 1888 and 1889, to which I would refer those specially interested in this subject.

In examining this mass of legislation, I was impressed with the large scope of the powers of the police authorities in continental Europe, and that there are many of these functions which our States might adopt with profit. For instance: in addition to what we consider the ordinary police duties relating to the enforcement of the laws and regulations respecting public order, the suppression of crime and violence, the supervision of the excise, of public places of amusements, etc., we find the following as being specified as part of the duties of the police administration in matters relating to public health: viz., —

(a) The registering and licensing, after previous examination by a board of experts duly appointed for that purpose, of all physicians, surgeons, accoucheurs, midwives, orthopedists, dentists, pedicures, trained nurses, and veterinarians.

(b) The registering and licensing, after suitable examination, of all pharmacists and of their assistants; also the inspection of all drug-stores, and the enforcement of rigid regulations concerning the sale of poisons.

(c) The supervision and inspection of all hospitals, whether public or private, public baths, prisons, schools, slaughter-houses, markets, stores, and other public and private establishments, in regard to their sanitary maintenance.

(d) The enforcement of all laws, and the making of all needful regulations to carry out their provisions, in regard to public health,

especially those concerning epidemic or contagious diseases of men or animals.

(e) The supervision and inspection of all articles which serve as foods, properly speaking, or as beverages, as well as those which are employed in the preparation, production, manufacture, or preservation of such foods, including the places where such articles are sold, stored, or manufactured (see the laws on sanitary police, of France, Belgium, most of the cantons of Switzerland, Germany, Italy, etc.).

It is to certain features of the laws and regulations on this last subject that I wish to call your attention. These may conveniently be divided into four heads; viz., general, special, penal, and executive provisions.

General Provisions.

The word "food" may be said to include all commodities, materials, or ingredients, of whatsoever character, intended for human consumption.

A food is considered as adulterated or falsified (a) when any substance has been added which does not exist in the normal product, or is only found there in an appreciably lower proportion; (b) when any substance has been subtracted that is normally present in the product, and which is not found in the abnormal product or only in an appreciably lower proportion; (c) when it is an imitation of, or sold under the name of, another article; and (d) when any substance has been substituted, wholly or in part, for the article.

The selling, offering for sale, or otherwise putting on the market, as well as the use, of any food commodity which is unwholesome, altered, or decomposed, is prohibited under severe penalties.

The selling and offering for sale, for the purpose of slaughtering, of animals infected with contagious and other diseases, as well as the selling and offering for sale of the meat from such diseased animals, is prohibited. Power to regulate the proper inspection before and after slaughtering is left to the competent authorities.

The employment of poisonous coloring-matters in the manufacture of clothing, wall-papers, toys, eating, drinking, and cooking utensils, and other articles of common use, as well as their use in wrappers and vessels intended for the packing or for the preservation of food, are also prohibited.

Every dealer in food commodities must be responsible for the quality of his merchandise, whether of foreign or domestic origin.

Every food material must be sold under its true name.

Every dealer having an artificial product imitating a natural product in his possession, whether the same is intended for sale or is claimed to be solely for his own use, must announce such fact by conspicuous placards in his shop. All such artificial products must be duly labelled in a conspicuous and legible manner, bearing the name of the merchandise accompanied by the prefix "artificial."

The manufacture of, trade in, and offering for sale of, substances intended for the adulteration of articles for food is forbidden or restricted to certain prescribed methods and substances by stringent regulations of the competent authorities.

The power to regulate and to supervise the methods and the means for carrying out the provisions of these laws is placed with the competent authorities.

Special Provisions.

These include clear and concise definitions of the different food-products, as well as very often an accurate statement of what shall be the minimum chemical composition of such foods or their ingredients. The latter feature, however, is, owing to the constant advance made in the methods of chemical analysis, and also, it must be said, to the shifting character of adulterants used, much better left to frequently revised regulations by competent authorities than to the precise wording of a law.

1. BUTTER AND CHEESE. — These must be made from milk or cream, or both, and with or without common salt. Any admixture of a foreign fat not derived solely from milk makes the product artificial, and it must consequently be so labelled and sold. Most of these countries have special laws on the manufacture and trade in artificial butters (see reports of the commissioner of internal revenue for 1888 and 1889).

¹ Presented at the annual meeting of the American Public Health Association, Oct. 22-25, and published by permission.