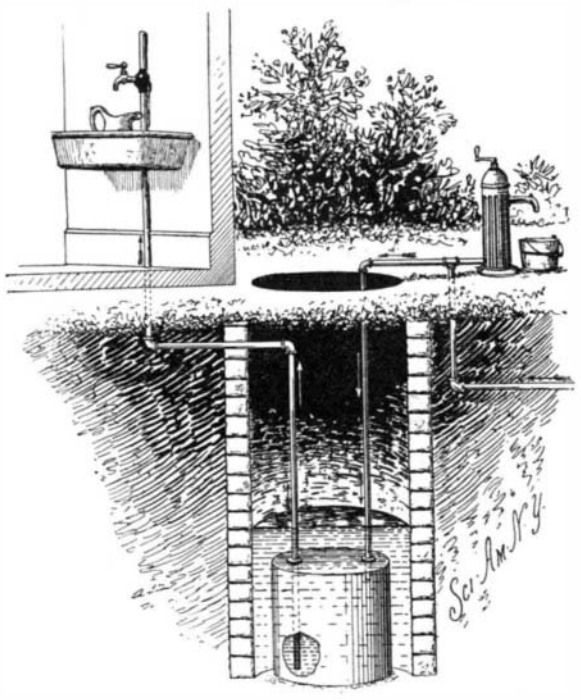
SIMPLE MEANS OF COOLING DRINKING WATER.

We have received from Mr. George H. Young, of Elmira, New York, a description of a simple means of cooling drinking water, which he has tested in an experimental plant at his residence. The plan answers both for summer and winter. Mr. Young's well is about sixteen feet deep and the water in the well is about three feet deep. A tank made of any suitable material is put in connection with the city main or the supply from a tank. The outlet pipe ends near the bottom of the tank, insuring the coldest part of the supply being delivered in the house. The device is simple and can be made by any plumber or steam



SIMPLE MEANS OF COOLING DRINKING WATER.

fitter. Often wells have been abandoned when the town or city has put in a system of water supply, and they can be utilized to cool the water from the mains. After wells have become somewhat contaminated, making the use of such water questionable from a sanitary point of view, they can be fitted with the device we have described with perfect safety, provided all the connections are tight. In winter the tank takes off the icy chill from the water, and in Mr. Young's plant the water is drawn at a temperature of about 50 degrees.

THE ACCURATE WEIGHING OF LOCOMOTIVES.

The accompanying illustration represents the method adopted by the Baldwin Locomotive Works for determining, with great exactness, the distribution of the weight of a locomotive among the different axles. The common practice in weighing a locomotive is to run it upon the scales and determine the total weight, then run only the driving wheels on the scales, taking the weight for them alone, and lastly to take the weight with the truck wheels only upon the scales. It was found, however, that if the second and third weighing are added together the total is always greater than the total weight as shown by the first weighing, which would indicate that some of the weight is counted twice over. The plan adopted by the Baldwin Locomotive Works is to place a separate scale beneath each pair of wheels, each scale having a resting place for each wheel of the axle and being itself mounted upon a little four-wheeled truck which runs upon a standard track rail. Each of the scales has a registering capacity of 60,000 pounds, which, of course, allows an ample margin over the heaviest concentration of load to be found in regular locomotive practice. Our illustration shows the weighing of a narrow-gage, double-ended locomotive built for a South American railroad.

The Origin of the Consul.

In the thirteenth century the English merchants had houses abroad, as for instance the "Domus Anglorum" at Bruges and the head of this house at one time was the celebrated William Caxton, who was responsible for the introduction of printing into England. The rector of this house was in fact a kind of consul. He sent home regular reports of the state of trade and prices and fluctuations of supply and demand, and this is perhaps the first example which we have of our modern consul obtaining industrial facts for the use of merchants at home.

The Value of Meat Extracts.

Dr. A. McGill, in a report to the Inland Revenue Department, Ottawa, Canada, observes that much has to be done by experimental physiologists before final pronouncements can be made upon the food value (if any) of the flesh bases which, in most instances, form the chief portion of the nitrogenous material in meat extracts. The bases certainly differ among themselves in food value, and, of course, if this is true of the flesh bases, it is à fortiori true of the various forms in which proteid matter occurs in these preparations, viz., as peptones, proteoses, acid albumens, and so forth.

Dr. McGill's experiments suggest that a part of the nitrogen in some meat preparations exist as urea. Urea certainly can have no food value, nor can one readily understand how the allegation that it is of use as a stimulant can be justified. Nature seems to have provided for its prompt elimination from the system, and it is certain that any failure to get rid of it by way of the kidneys resulted in serious disturbance of the vital functions, and may end in death by uræmia. No practical method has been discovered by which a sharp analytical line can be drawn between the nitrogen present as urea and that present as creatin, creatinin and xanthin.

It is evident that the flesh bases cannot be called food stuff in the proper sense of that term. They represent a stage of the process by which complex nitrogen compounds are changed to simple ones, supplying the energy so set free to the animal organism in the form of vital force. They may still have some food value, since they are not excreted as such, but undergo further simplification, till they appear as urea. It is certain that their food value is very much less than that of proteids proper. When once the urea stage is reached, the urea must be promptly got rid of.

The blood is the vehicle by which nutritive matter which has been digested and made soluble is conveyed to all parts of the body; and it is also the vehicle by which waste matter is conveyed to the lungs and other excretory organs to be got rid of. Flesh bases are always present in the blood, though in small amounts. They are much more largely present in muscle tissue, and when fresh lean beef is treated with hot water, these flesh bases are the chief material taken into solution. Apart from any possible nutritive value which they have, these flesh bases undoubtedly possess a stimulant action on the system, analogous to that exhibited by the alkaloids of tea, coffee, and cocoa, and it is beyond question that to this stimulating effect, rather than to any true nutritive power, they owe such value as they possess.—British Food Journal.

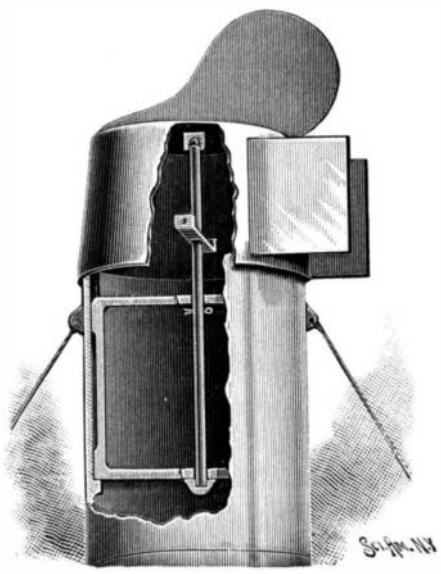
Theory of Welsbach Incandescent Mantle.

Nearly all mantles in use have practically the same composition—88 to 89 per cent oxide of thorium, 20 per cent oxide of cerium, and traces of other matter which only play a quite secondary part. The lighting power of mantles is not due to any special emissive power, as is proved by observing the emissivity of oxides of thorium, cerium, and magnesium, and of retort carbon heated in an electric furnace to a temperature of about 2,000°. The lighting power results simply from the high temperature to which the mantle is raised, and which is due (1) to the catalytic properties of oxide of cerium and (2) to the fine sub-division of the latter. The presence of oxide of cerium lowers the temperature of combustion of a mixture of oxygen and hydrogen from 650° to 350°; the combustion is consequently strongly active in the neighborhood of the mantle, and a large quantity of heat is disengaged. The oxide of thorium forms a porous mass consisting of a large number of very fine filaments, which are coated with oxide of cerium. On account of the bad conductivity of these fine filaments, the heat, instead of being rapidly dissipated in the mass, is concentrated on the filaments, and the mantle is raised, to a very high temperature. It is certain that the two oxides are both necessary to obtain a good result, for mantles of pure oxides of thorium or cerium give ten to twenty times less light.—Bunte (Paris Soc. Franc. Phys. Bull. 114, p. 2, 1898).

A SIMPLE CHIMNEY TOP AND COWL.

The annexed engraving represents an improved chimney top and cowl, in which the support for the rotary cowl is so secured in the top of a pipe or chimney that it may be readily removed and replaced without requiring the removal of any portion of the pipe or chimney.

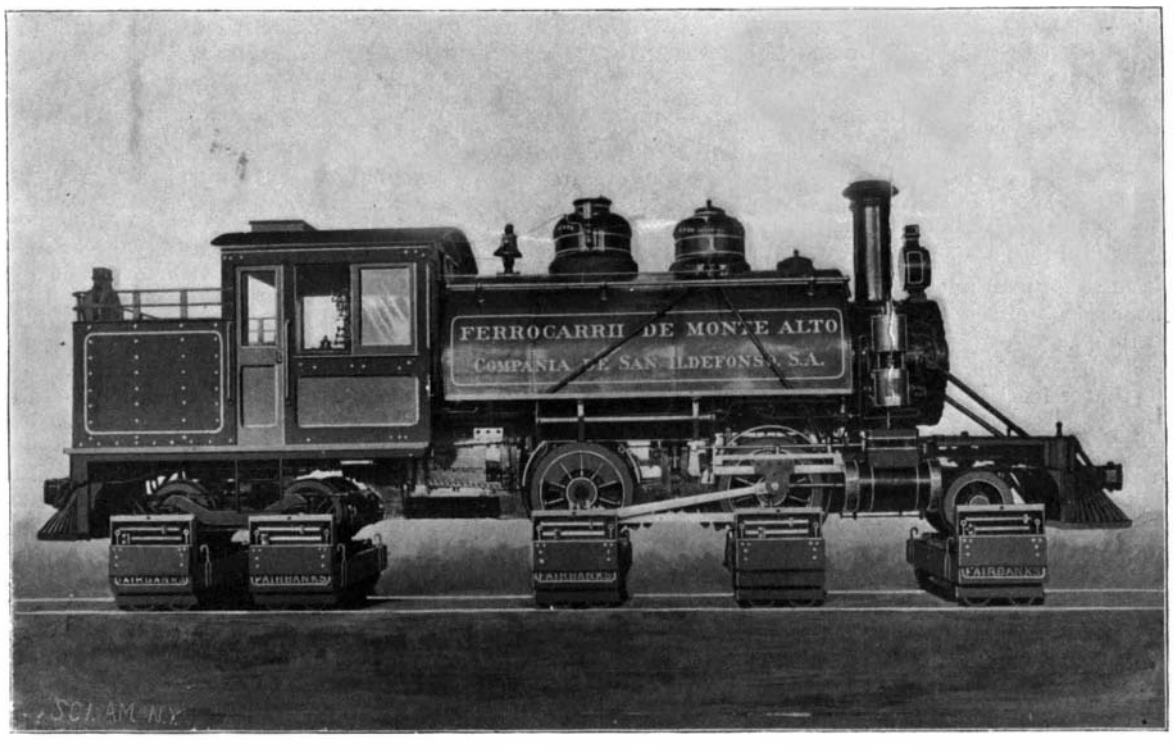
The chimney top or pipe is formed with two grooves on its interior surface, which are located diametrically opposite each other, and which are designed to receive the tongues of a sliding frame. A cowl spindle is passed through the sliding frame, its lower end being received by a socket. The cowl, which may be of the usual rotary form, has an interior cross-piece and a



SCHMALL'S CHIMNEY TOP AND COWL.

socket-piece on its upper end for the reception of the spindle. After having been placed in position, the cowl can be secured by means of a pin inserted through the spindle above the cross-piece. If necessary, the spindle may be locked in the sliding frame by inserting a pin beneath the top of the frame.

In assembling the parts, the spindle can be mounted either before or after the sliding frame has been placed in position. In the former case, the only operation required is the sliding of the frame into the grooves of the pipe chimney, and the locking of the cowl to the spindle. When it is desired to clean the chimney or pipe, it is necessary merely to lift up the sliding frame. The facility with which the cowl may be thus removed and replaced constitutes the chief merit of the invention. The patents on this cowl are controlled by Frank Schmall, 878 Eighth Avenue, New York city.



METHOD OF WEIGHING LOCOMOTIVES AT THE BALDWIN LOCOMOTIVE WORKS.

The Temperature of the Aged.

It seems to have been the general impression that the temperature of the blood became a little higher in advanced age than in the previous years of life, but Chelmonski (Deutsches Archiv für klinische Medicin, lxi., 1, 2; Deutsche Medizinal Zeitung, July 24) combats this view on the strength of thorough observations of over a hundred persons. Indeed, he finds that the temperature gradually tends to fall a little below what is considered the normal point. Moreover, the type of its diurnal cycle is reversed; it is higher in the morning than in the evening. There is something besides the figurative, then, in "hot blood of youth."—N. Y. Med. Jour.