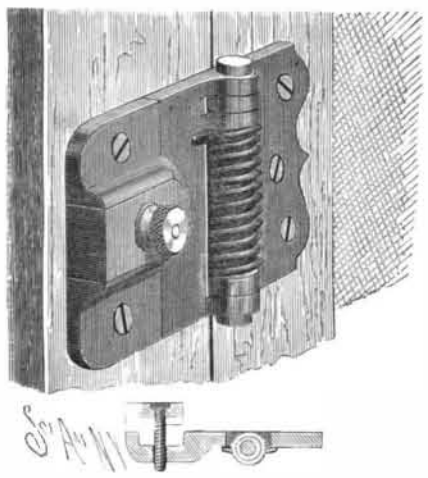
A DETACHABLE HINGE FOR SCREEN DOORS, ETC.

The illustration represents a simple and inexpensive form of hinge by means of which a door may be held in position and readily removed any number of times by simply unscrewing a nut, without the necessity of removing wood screws or other fastening devices inserted in the wood of the door casing. The improvement has been patented by Oliver H. P. G. Spencer, of Mount Carmel, Ill. The hinge is attached to the stile of a screen or other door, and is composed



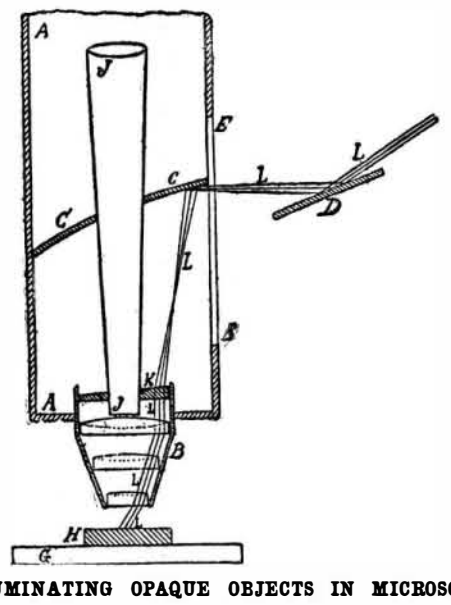
SPENCER'S DETACHABLE HINGE.

of two parts, connected by a pivot pin on which is coiled a spring. The outer leaf of the hinge has at its rear edge a central projection with transverse groove on its under side, as shown in the small figure, adapted to receive and fit over a reduced portion of a bracket plate attached to the casing or frame of the doorway. At the center of the reduced portion of the bracket plate is a bolt with a square head fitting in a recess in the back face of the bracket, while its free threaded end passes through an opening in the central projection of the outer leaf of the hinge, where it is engaged by a milled nut. To take down the door it is only necessary to unscrew the nut, the hinge remaining on the door and the small bracket plate on the casing, the nut being again placed on the bolt that it may not be lost.

MICROSCOPE FOR THE EXAMINATION OF OPAQUE OBJECTS.

Several attempts have been made up to the present time to devise apparatus for the illumination of opaque objects examined under the microscope. One of the best known processes is that of Lieberkuhn, which consists in applying around the objective an inclined concave mirror, which concentrates the luminous rays in reflecting them upon the preparation. This apparatus cannot be applied unless the frontal distance of the objective is sufficient to permit of the passage of the luminous rays sent obliquely. It can, therefore, be employed only for feeble magnifications. Moreover, such oblique illumination is an inconvenience.

Mr. Charles Fremont has succeeded in effecting the illumination through the interior of the tube of the



ILLUMINATING OPAQUE OBJECTS IN MICROSCOPE.

microscope and the objective, so that this new method is applicable to even the strongest magnifications.

The arrangement adopted, as described to the Academy of Sciences, through Mr. Marey, is as follows:

The pencil of light, L, directly projected or reflected by the mirror, D, enters the body, A, of the microscope tube through an aperture, E E, and meets a concave mirror, C, which is movable and capable of being raised or lowered in order to send the light through the lenses of the objective, B. A prism, K, is interposed in the path of the pencil in order to right it and render it parallel with the axis of the microscope before it enters the objective.

The mirror, C, and the prism, K, are provided with an aperture to permit of the passage of a conical tube, J, that allows one to perceive, through the ocular, the image of the preparation, H, given by the objective, B, so that such image is never met by the luminous pencil.

This process permits of obtaining a vertical illumination of great intensity and of perfect clearness, both qualities indispensable for photographing microscopic images.

In presenting this apparatus to the academy, in behalf of Mr. Fremont, Mr. Marey recalled the experiments that he had made toward reproducing microscopic beings by chronophotography. With ordinary illumination, the objects detach themselves from a luminous ground, and successive photographs of them can be taken only upon a movable film. The series of images thus obtained include, it is true, all the data necessary for determining the changes of form and position of the object in motion; but, in order to appreciate such changes, it requires considerable labor in the way of comparing the images, which are intimately connected in a long series. For such studies it would be preferable to have recourse to chronophotography upon a dark ground, which, upon the same immovable plate, reunites the successive images of the object.

This method, which has been applicable only to objects of large dimensions, will, perhaps, owing to Mr. Fremont's new instrument, be applicable to microscopic photography. Should such be the case, a great progress will certainly be made in our knowledge of the motions of microscopic beings.

Living Greek—the Language of Physicians and Scholars.

At a recent meeting of the New York County Medical Association, Dr. Achilles Rose read the paper. Since the establishment of the American school at Athens, founded in 1892 by the American Archæological Institute, supported by contributions from eighteen universities in the United States, there had been a diffusion among cultivated people of a more correct notion of the Greek language, and of the fact that it was a living language. It was generally conceded that a study of the classical languages, and of the Greek especially, was a powerful means of elevating and ennobling the mind and character, and could not be dispensed with. The Greek language was practical as well as ideal. It was easy to learn as a living language, but it was necessary to reform methods of teaching it in the colleges. It was remarkable how it had been calumniated, by claiming that, as spoken by the Greeks to-day, it was mixed with various other languages. As a matter of fact, it had been preserved remarkably pure from ancient times, and for this we were much indebted to the Greek Church. As an example of the ease with which Greek could be learned as a living language, Dr. Rose presented his little daughter, about seven years of age, who recited a piece and sang in Greek. She also spoke a piece in French, showing that during childhood the learning of languages was easy.

Dr. Fred C. Valentine thought it would prove far more practical to make Spanish the language of physicians and scholars, for it was already spoken by eighty millions of people, was beautiful, its orthography was phonetic, with few exceptions, and one could learn to speak it in as many weeks as were required to learn the Greek alphabet.

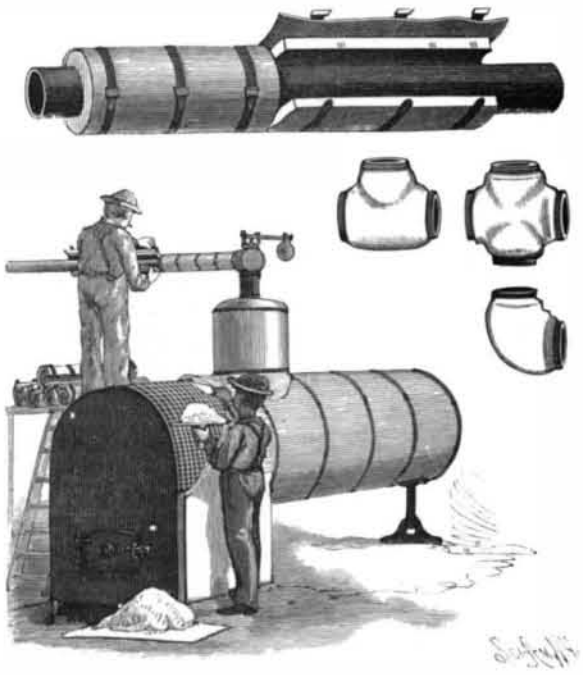
The president had come to the conclusion that the preponderance of evidence was in favor of Greek as the language of scholars, for it was a language of very great beauty, of very great flexibility, and one possessing the power to carry ideas to others as perhaps no other language could.—Medical Record.

Guttapercha Leaves.

A new enterprise that it is claimed will largely increase the output of guttapercha is the collection and export of the dried leaves of the gutta tree. At first a few small packages of leaves were forwarded to Paris, and, once there, an excellent quality of pure guttapercha was extracted, the leaves yielding from seven to ten per cent of their weight of the manufactured article. Mons. F. Hourant, who sent the leaves to France, after some difficulty, succeeded in getting the natives to work systematically at the collection of the leaves, and now they are being exported in quantities which increase from month to month. He has erected a factory at Kuching for the purpose of thoroughly drying these leaves before shipment. The advantages of this method are evident. The natives formerly cut down a tree to obtain the sap, and from this, if it were an adult tree twenty-five to thirty years of age, there was obtained one catty of pure dry gutta. Fully as much can be obtained from two pluckings of the leaves of the same tree, without injuring it, for it will long continue to put out fresh foliage and, what is more important, will live to seed and reproduce its species. This is an important point, as the best gutta trees do not bear fruit until thirty years of age. The gutta obtained from the leaves is also pure and dry, which is much more than can be said of the ordinary Dyak gutta. The millions of trees that have already been destroyed by the native gatherers are also still of service, as their stumps have sent out numerous small shoots, and, though these are too small to be tapped, their leaves are as good as those of the adult tree.

STEAM PIPE AND BOILER COVERING.

The saving of coal effected by having steam boilers and pipes thoroughly covered is well understood by nearly all steam users, and the absolute necessity for such covering of pipes where live steam is to be conveyed any considerable distance is everywhere conceded. In the accompanying illustrations are shown the methods by which non-conductive covering is applied for purposes of insulation by the New York Fireproof Covering Company, of 121 Liberty Street, New York. The material used as a non-conductor is rock wool, which is made of feldspar and limestone, in much the same way as mineral wool, and is claimed to be superior to the latter, inasmuch as it contains no sulphur, presenting more minutely divided air spaces, whereby the covering is made very light, containing about 96 per cent dead air. The pipe covering is made in sections three feet long, to fit any size pipe, with heavy canvas casing and laps and metal bands and fittings to match. For boilers, domes, heaters, tanks, etc., the coverings are made in blocks from one to two inches thick, these to be covered with wire netting and a coating of rock wool cement, making a smooth, hard finish, the blocks being cut to fit around projecting pipes or other irregularities. A rock wool fireproof cement, which can be mixed with a trowel and applied like mortar, is provided for covering irregular shaped surfaces. The covering is in each case



STEAM PIPE AND BOILER COVERING.

very simple of application, requiring no skilled labor: and as the saving from radiation is very great, the investment would pay for itself in a few months' time.

Oriole Strawberry.

As an example of plant breeding on scientific principles, Mr. A. W. Slaymaker writes to the Rural New Yorker of the Oriole strawberry. The blossoms of Bubach, a pistillate variety of vigor and productiveness, were fertilized with pollen from the Hoffman, an early Southern variety, with vigorous habit and fine fruit which lacks size. The seeds from this cross were planted and two new varieties have been selected, one named Oriole and the other Ideal. Oriole has all the most desirable characteristics of the Bubach and an extra early ripening season, and in this way it combines the good qualities of both berries. It should be said that all the blossoms of the Bubach parent plant, except those which were fertilized with the Southern sort, were taken off and the runners removed the year before, so as to give the fruit originating from the cross all possible vigor.

The Japanese Plum.

Mr. J. H. Hale is satisfied that the Japan plum in Georgia will form a more profitable market fruit even than peaches. The trees are strong growers and come into bearing a year after planting; in two years they yield half a bushel each, and more, of course, as they grow older. The fruit, as grown in Georgia, is very large and brilliantly colored, and has a tough skin that makes it easy to ship. Such varieties as the Burbank, for example, if picked while green, but fully grown, and wrapped in paper, can be carried for two or three weeks and will yet ripen into a rich, sweet fruit with fine color. The season of shipping ranges through June and early July. The Willard ripens about May 20, the Abundance from June 10 to June 15, and the Burbank some ten days later.

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