Should the spurs, from the untwisting of the strands, become loose and easily movable on their bearings, a few turns of the twisting-key will make them firm, besides straightening up the fence-wire.

What I claim as my invention, and desire to secure by Letters Patent, is—

A twisted fence-wire having the transverse spur-wire D bent at its middle portion about one of the wire strands *a* of said fence-wire, and clamped in position and placed by the other wire strand *z*, twisted upon its fellow, substantially as specified.

Science News Letter, July 29, 1933

PHYSICS

Photocell Tests Smoothness Of Polished Metal

DETERMINATIONS of the degree of smoothness of polished metals, important to scientists and engineers today, have recently been made by the French metallurgist, Dr. Albert Portevin, through the application of the photoelectric cell.

A beam of light is focused on the metal specimen so that it will be reflected to the sensitive cell. When the specimen is moved along in the path of the beam, any microscopic hills or valleys will register as fluctuations in the electric current produced by the cell due to variations in the reflected light.

Extensive use is made of smoothness determinations in the examination of machine parts subject to frictional wear. They are also valuable for indicating the relative efficiency of different abrasives employed in polishing metals.

Although numerous methods have been developed for studying the quality of polish, this latest adaptation of the ever popular photoelectric cell to the problem promises to supersede some of the laboratory methods now in vogue. This is particularly true in the case of the study of the surfaces of metals intended for corrosion tests. Here the initial degree of smoothness is of vital importance to the interpretation of the results of such tests.

Metals which have become colored during the process of corrosion, or upon heating as in the case of tempered steel, have to be examined with light consisting of only one wavelength (color) and a colored filter must be placed in the reflected ray to insure accuracy. If white light were used, the result would be unsatisfactory due to the presence of many different wavelengths.

Science News Letter, July 29, 1933

DENTISTRY

Exercise Good for Teeth Theory Seems Contradicted

THE EXPERIENCE of a South American Indian lad seems to contradict the modern theory that our teeth are bad because they do not get enough exercise from the soft foods we eat.

This lad, Moi-i by name, had never had any trouble with his teeth nor had he seen any signs of dental decay during the fifteen years he lived with his own people, the Makuxi Indians. His food during this period consisted of many fresh vegetables of different kinds, little meat, almost no salt and a good deal of hard cassava bread, which gave his teeth plenty of exercise, related Earl Hanson, who met Moi-i during the recent magnetic expedition of the Carnegie Institution of Washington. Mr. Hanson's observations are reported in the current issue of *Science*.

At the age of fifteen Moi-i was obliged to leave his people and go to work on the Brazilian National Ranch in the cattle plains. Here he ate the white men's food consisting of a great deal of meat, almost all dried and salted; milk and cheese; almost no vegetables, and a great deal of salt. After a year and a half he had to go the dentist for repair of the ravages of a bad case of dental caries, or tooth decay.

The interesting point, Mr. Hanson comments, is that while Moi-i's teeth had plenty of exercise chewing his native hard cassava bread, they must have had much more exercise chewing the quantities of dried meat he ate later.

"If exercise is the determining factor, his teeth should have improved instead of deteriorating," Mr. Hanson remarked.

Mr. Hanson calls attention to two other interesting facts. One is that Moi-i ate very little salt until he lived with white people, and that the Indians of Southern Venezuela believe the white men have bad teeth because they eat so much salt. The other point is that Moi-i, when he lived with the white people, gave up his native habit of constantly cleaning his teeth with charcoal.

Science News Letter, July 29, 1933

"Dry ice" is one of the newer aids in fire-fighting, particularly when fire breaks out in an underground electrical conduit where it is hard to extinguish.

MEDICINE

One Treatment Replaces Three For Diphtheria Protection

PROTECTION against diphtheria may now be given to infants and children with a single injection of toxoid, instead of three, Dr. J. N. Baker, Alabama State Health Officer, has just announced.

The new protective toxoid is the result of years of research by the late Dr. Leon C. Havens, for 12 years director of the state laboratories. The perfection of it was the last piece of scientific work done by Dr. Havens and is considered by fellow health officers a fitting monument to the man.

The new toxoid has been developed from the old toxoid, already widely used in diphtheria prevention work. Dr. Havens knew as did other scientists that when toxoid is treated with alum it forms a precipitate which is very slowly soluble. This precipitated toxoid is absorbed in the body much more slowly than old-style toxoid. Dr. Havens believed that this would make it more effective, since none of it would be wasted by elimination from the body before it had time to do its job of developing immunity or resistance to diphtheria. Investigations proved that this was correct and the use of the new toxoid has been approved by the U. S. National Institute of Health in Washington and the state public health committee.

"The finding by Dr. Havens of an immunizing agent for protection against diphtheria as potent as the present preparation will do much to revolutionize the campaign against diphtheria," Dr. Baker stated at a meeting in Montgomery, Alabama.

"Formerly it required three injections, a week apart, to secure adequate protection. With this new product one injection will immunize 95 to 98 per cent. of those susceptible."

Dr. Baker said further that with the reduction of the number (*Turn Page*)

of injections, a much wider use of this new protection will be possible. Medical experts have found that 75 per cent. of children of pre-school age are susceptible to diphtheria and it is in this group that most of the deaths occur.

"It is therefore of special importance that all children over six months of age be protected against diphtheria," the health officer continued in his address before the meeting.

With the new toxoid requiring only one injection instead of three, this job of protecting all the school children of a city against diphtheria can be done much more quickly.

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PSYCHIATRY

Insanity Gives Release From Hard Life

INSANITY is often a release from hard or unsatisfactory life, Dr. Mandel Sherman of the University of Chicago reported to the American Association for the Advancement of Science.

One exceedingly common form of insanity is religious mania. This is more frequent among women than among men, though the difference is greater among whites than among Negroes.

Another form of insanity is the delusion that you have serious bodily illness. This afflicts more white women than it does white men; but among Negroes the ratio is reversed, and more male Negroes than females suffer from wholly imaginary "mizries."

There appears to be a direct relationship between the occurrence of insanity and generally wretched, poverty-stricken living conditions, at least among the Negroes.

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PSYCHOLOGY

Occupational Tests Reveal Undeveloped Talents

Clinic Makes Classification and Rehabilitation Service Available for Unemployed; Is Aid to National Recovery

SCIENTIFIC METHODS of occupational guidance, made available for the first time to those without money to pay for this expensive service, have revealed unsuspected talents among men holding inferior positions, records of the Occupational Testing Clinic at Minneapolis, Minn., show.

The man who fails at a routine or inferior job and is laid off is not necessarily too stupid for it; he may have superior abilities in a different line. Actual cases of a man talented as an architect but failing as a timekeeper, men with clerical ability who could not hold a job at ordinary labor, a potential engineer who could not make good in a round house labor gang, are typical of the records in the Occupational Testing Clinic files.

Thoroughly Discouraged

These men did not know of their abilities. For the most part they were thoroughly discouraged and considered themselves failures—down-and-outers. Some were dependent upon charity for the care of their families. In good times their wages may have ranged from 35 to 60 cents an hour. In bad times they were idle.

But the Occupational Testing Clinic's individual study of these cases showed the men to be victims, not merely of the depression, but of misplacement at jobs not suited to their individual aptitudes. Re-training, or in some cases, just a steer in the right direction, resulted in successful placement at a higher wage level and satisfaction for both employer and employee.

This scientific guidance has been made available to the unemployed in Minneapolis by the Employment Stabilization Research of the University of Minnesota. The following cases are typical of the way in which the laboring man may be benefited if the new United States Employment Service follows the example of public employment services in Minnesota and makes this service in occupational classification and rehabilitation available to the unemployed of the nation. The names used below are fictitious.

Case S 548. George Edwards is 26 years of age and has a wife and three children to support. The oldest child is six years old and the youngest two and a half. George's father was a barber. During the summer while George was attending high school he operated a labeling machine in a brewery, earning about $20.00 a week. He continued at this job after he had quit school, and was earning $22.50 per week when he married in 1925.

Since this job was seasonal in character, George obtained work as an extra man on a labor gang in a round house in the fall of 1926. He worked at this job for the railroad at $2.88 a day for about a year and eight months.

He has had no permanent work since 1928, although he drove a truck for a package delivery company for about six months, drove a taxicab for about three or four months, was chore boy in a bakery shop for about three or four months, fired a low pressure steam boiler for two winters, and during one summer when the street railway company was laying a new track, he acted as flag man.

The Occupational Testing Clinic discovered that this man had unusually high abilities along clerical lines and excellent mechanical abilities, combined with the typical interests of the engineer. It was very clear that this man should have been trained as an engineer, but that such training would be impossible unless some way could be found to maintain his family while the training was being given. Attempts were made to work out some program of caring for the family, but the charity organizations were already over-burdened with the families of unemployed men, and it was therefore impossible to offer the engineering training, although training was provided in various electrical skills useful in connection with radio repairs and maintenance.

This man succeeded very well in his