Vital Knowledge.

In a strong and feeling article on the distress among the laboring classes in England, and the urgent need of the most liberal contributions from the wealthy to relieve the suffering of the masses, the London *Times* lays great stress upon a principle of education too often overlooked by public teachers. "The education of the laboring classes has been terribly deficient in this most important respect, that the schools for their children, of whatever denomination, have scarcely made any endeavor to teach the principles of conduct, or to make the pupils understand, as matters of familiar knowledge, the inevitable effects of industry and of idleness. Reading and writing are, no doubt, important, notwithstanding how greatly their value depends upon the quality of the compositions which are read or written; but it is not less important, to any man whose probable future is that of a recipient of weekly wages, that he should know thoroughly the immutable truth, which no combination can falsify, of the general dependence of prosperity upon industry, upon thrift, and upon the use of opportunities. When we hear of working men, even now, refusing a wage upon which they might live, and which is all that the state of the markets will allow their employers to pay, because it falls below some arbitrary or ideal standard, it is almost as natural to feel anger at their perverseness as compassion for their stupidity. The question, 'Have they been taught better?' is one which should be answered before any judgment is pronounced upon the case. Unless this question can be answered in the affirmative, the ignorance which has been permitted to continue is hardly a ground for denial of help to the sufferers. The capitalized wealth of the country is not insufficient to bear the strain beneath which the active prosecution of industry has for a time succumbed."

New Agricultural Inventions.

Mr. James E. Wells, of Holmdel, N. J., has patented an improved Apparatus for Destroying Insects on Vines. It is particularly intended for applying to potato vines a mixture of Paris green and water for the purpose of destroying the Coloradq beetle or potato bug.

Mr. John H. Simpson, of Stone Bluffs, Ind., has patented an improvement in the implement commonly known as the "A-Harrow," being formed of two diagonal tooth carrying bars connected by a transverse bar. The improvement consists in a novel method of connecting the several bars.

Mr. Alponso Record, of Farmington, Minn., has devised an improved Seed Planter, in which the holes of the dropping wheel will be so long within the seed box that the said holes will certainly become filled with seed before they come over the discharge holes.

An improvement in Cotton Seed Planters has been patented by Mr. Henry A. Walker, of Milton, N. C. This invention relates to machines for planting cotton and other seed The construction and arrangement of the parts of the apparatus cannot be explained without an engraving. The machine is substantial and effective.

A Large Contract for Iron.

The Phœnix Iron Company, of Pennsylvania, have completed a contract with the Metropolitan Elevated Railroad Company, of this city, for 80,000,000 pounds of iron girders, columns, braces, etc. which the Philadelphia *Ledger* estimates will cost $3,000,000.

One of the new roads of this company is to run on the Eighth and Ninth avenues to the Harlem river, a distance of four miles. The other branch will commence on Morris street, and along this street to Broadway, crossing that street at Bowling Green Park, through which it crosses to Beaver street, and thence to Pearl street, where it will connect with the present New York Elevated Railroad, and follow that to the upper end of Chatham Square; the new road will then branch off, passing up Division street to Allen, thence to First avenue, thence to Twenty-third street, thence to Second avenue, and thence to the Harlem river, making the distance seven miles. Most of the road is to be constructed so as to eventually receive four tracks, the cross girders to carry these tracks being 40 feet in length.

In putting this road up, it will be placed in the center of all streets over 55 feet in width from curb to curb, leaving space for carriages on each side, and with space underneath the elevated track for a double track street railway. Where the street is less than 55 feet between curbs, the columns will be placed on the edge of the sidewalk, and the girders will span the street, leaving the roadway unobstructed.

The Phœnix Iron Company, to complete these contracts, will keep their works in operation night and day. At present they have upon the pay roll 1,500 men, but in a few weeks this force will be increased to 2,000—a very encouraging state of things for the able-bodied men seeking work in those parts.

The shops and mills belonging to this company cover about six acres, in addition to the finishing shop, occupying a space of two acres more. There are twenty-one double puddling furnaces, and a contract has just been entered into for a mill containing eleven more, which, combined, will give a capacity of 800 tons per week of such iron as is used in constructing the elevated road.

During the time necessary to complete the work at the mills at least 60,000 tons of coal will be required. To facilitate the operations at night in the machine shop two of Brush's electric lighting machines are to be introduced.

A NOVEL OILER.

Nothing in mechanics demands more attention than the subject of the lubrication of journals. There are many lubricants, and numerous devices for applying them, but there are few of either that are not in some respect deficient. In the lubrication of machinery it is essential not only to do it thoroughly, but in these days of economy it must be accomplished with due regard to cost.

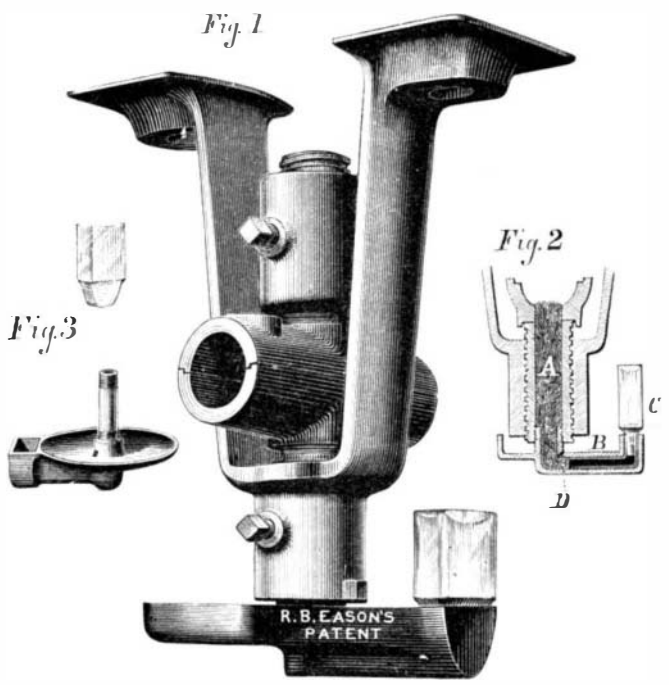
One of the most ingenious and apparently effective devices for continuously lubricating journals is shown in the accompanying engraving. In the arrangement shown in Figs. 1 and 2 the lower trunnion of the journal box is tubular, and has a filling, A, of cotton waste or other fibrous material, as shown in Fig. 2. Into the trunnion is screwed the nipple which supports the drip pan, B, and the passage formed in the bottom of the pan communicates with the nipple and has a vertical opening for receiving the neck of the bottle, C.

The nipple, which extends into the trunnion, is filled with cotton waste, so that when it is screwed into place the wick is practically continuous from the horizontal passage in the pan to the journal.

A small hole at D permits the oil that drips from the journal into the pan to re enter the wick tube and be again used.

In Fig. 3 is shown an oiler and drip pan adapted to an ordinary journal box. Its principle is precisely the same as in the one just described.

The bottle, C, is filled with oil, and inverted, and its neck is inserted in the mouth of the passage in the pan. As long as the horizontal passage in the pan is full the oil will not escape from the bottle, but when it is drawn by the capillarity of the wick so that the mouth of the bottle is exposed, a small quantity of air enters and a drop or so of oil escapes.



EASON'S DRIP-PAN AND OILER.

By means of this device oil is supplied to the journal just when it is needed, and every particle of oil is utilized. We are informed that this device has proved very efficient in practical use.

Further information may be obtained from the patentee, Mr. R. B. Eason, 135th street, between Alexander and Willis avenues, New York city.

Killed by Snakes and Wild Beasts.

The *Lancet* says that in the report on "Sanitary Measures in India," which has just been presented to Parliament, it appears that last year 21,682 fatal cases from attacks of wild animals had occurred in ten provinces, the largest number being in Bengal, namely, 10,062. The deaths from snake bites alone in the Punjaub last year were 828, against 979 in the preceding year. As showing the rapidly fatal effects from the bite of the cobra, the commonest and most deadly of Indian poisonous snakes, Surgeon A. J. Wall states that one night, about half past twelve o'clock, a Hindoo punkacooly, aged forty, while sleeping in the veranda of the doctor's house was bitten on the shoulder by a snake about three feet long. The noise and confusion soon awoke Mr. Wall, who at once hastened to the assistance of his servant, and after waiting for a short time for some ammonia, he proceeded to inject it, as recommended by Sir Joseph Fayrer and Professor Halford, previously giving the patient plenty of brandy, walking him rapidly about, etc.; yet, notwithstanding all attention, the man died in sixty-five minutes after the attack. Mr. Wall adds that the remedy had as little effect on the symptoms as it had on the result.

Rest for Headaches.

Dr. Day says, in a late lecture: Whatever be the plan of treatment decided upon, rest is the first principle to inculcate in every severe headache. Rest, which the busy man and the anxious mother cannot obtain so long as they can manage to keep about, is one of the first remedies for every headache, and we should never cease to enforce it. The brain, when excited, as much needs quiet and repose as a fractured limb or an inflamed eye, and it is obvious that the chances of shortening the seizure and arresting the pain will depend on our power to have this carried out effectually. It is a practical lesson to be kept steadily in view, in that there may lurk behind a simple headache some lesion of unknown magnitude which may remain stationary if quietude can be maintained.

There is a point worth attending to in the treatment of all headaches. See that the head is elevated at night, and the pillow hard; for, if it be soft, the head sinks into it and becomes hot, which with some people is enough to provoke an attack in the morning if sleep has been long and heavy.

Petroleum in Formosa.

Two Pennsylvania gentlemen have returned from China, whither they were about a year ago to examine, for the Chinese Government, the oil grounds of the Island of Formosa. They report that a well was drilled through soapstone 396 feet; then 136 feet of drill pipe were put in and 265 feet of casing. No more casing could be got in owing to the caving in of the rock. At 348 feet depth a large vein of salt water was struck, and it was found impossible to go more than 48 feet deeper. Fifty barrels of oil were pumped in ten days. The oil territory is unlike anything found in Pennsylvania. The oil is very light in color and gravity, and was burned in lamps without refining. The property belongs to the Chinese Government.

A New Mode of Locomotion.

The newspaper carrier who serves papers to the attendants in the Permanent Exhibition Building goes his rounds at the rate of 12 miles an hour. He travels on machines not unlike roller skates, which are called pedomotors, according to the inventor, Mr. J. H. Hobb, an architect on Walnut street, above Fifth. The day is not far distant, predicts the Philadelphia *Record*, when the whole city will be on wheels, when pedestrians will be skimming through the streets at the rate of 10 miles an hour, without more effort than is now put forth in perambulating half that distance.

The pedomotor consists of four tough, light, wooden wheels, supplied with an outer rim of tough India-rubber. These wheels are secured to a frame the shape of the foot, which is strapped to the pedal extremities in the usual manner. Unlike roller skates, the wheels of these little vehicles are not under, but are placed on each side of the foot, thus giving the wearer a good standing, as well as a solid footing. The rear wheels are 3 inches in diameter, while those in front are but 2½ inches. This gives the foot a slight incline, and when in motion has much to do in impelling the pedestrian forward. Extending from the toe, with a slight curl toward the ground, is a piece of casting termed the pusher, which is simply used in mounting an elevation or steep incline. From the center of the heel a small brass wheel extends backward, serving as a guide as well as a brake. The whole scarcely turns the scale at a pound weight. In using them no more effort is required than in ordinary walking. The wearer steps with his regular stride, and is amazed to find himself skimming over the ground so rapidly with so little muscular effort. Mr. Hobbs explains the mystery of the rapid movement in this manner: A man whose stride is 32 inches will traverse 48 inches, or one half further, with the pedomotor. This is because the body is in constant motion. For instance, says he, the traveler starts, and while he raises one foot to step, he continues rapidly onward until that foot is set down and the other raised to make another step. This gives him more momentum, and away he goes over the two miles in the same time to accomplish a mile with the feet. No effort of the body is required for their use, as in skates. The traveler simply puts one foot before the other, and finds himself whizzed along at a lively rate.

Horseshoes for Slippery Streets.

Why may we not adopt the means practiced in Germany of inserting temporary calks in horseshoes during the slippery season? The German smith, when finishing the shoe, punches a hole in the two ends, and when the shoe is cold he taps in a screw thread and screws into the shoe, when on the horse's foot, a sharp pointed stud of an inch in length; and with shoes thus fitted the horse can travel securely over the worst possible road, and I have never known one to slip either when riding or driving; and draught horses are shod in the same way. When the horse comes to stable the groom unscrews the pointed stud and screws in a button, so that no damage can happen to the horse, and the screw holes are prevented from filling. When the horse is going out the groom simply takes out the button and screws in the pointed stud, thus preventing strained sinews, and the public are spared the painful sight of horses down or slipping in all directions.

We believe that a patent was granted for substantially the above described German mode of attaching calks to horseshoes, but we have never known of its being adopted. Certainly if it is feasible to use such removable calks in Germany, and we are told they are in general use, then we know no reason why they are not equally adapted to our slippery streets.