

## ENGINEERING INVENTIONS.

An apparatus for raising water has been patented by Mr. Thomas Arthur, of Bangor, Pa. The invention consists in a combination of tanks, siphons, inverted siphons, water pipes, air pipes, levers, floats, valves, and a stop cock, whereby the withdrawal of air from the initial siphons successively will cause a continuous raising of water.

A car coupling has been patented by Mr. Luther B. Owen, of Cedartown, Ga. The coupling pin, by means of a system of levers and rods, is made capable of being manipulated from the ends and sides of the car, while a bail may be operated from either side of car to control the coupling link without going in between the cars.

A driving belt has been patented by Mr. Gilman Jaquith, of Maysville, Ky. It consists of a single strip of cotton cloth folded repeatedly, with the warp running in the direction of the length of the band, and ends doubled upon itself for connection by a clip or hook shaped fastening, the whole stitched together to unite the folds and prevent raveling.

A compensator for wire ropes or cables has been patented by Mr. Richard B. Ireland, of Trenton, N. J. It consists in a wheel or roller carrying the rope and combined with the operating lever in such manner that normally the wheel is free, and is locked up by the movement of the lever, making an automatic and positive mechanism to allow for the expansion and contraction of wire ropes or cables.

## AGRICULTURAL INVENTIONS.

A plow has been patented by Mr. Donald M. McAlpine, of Savannah, Ga. This invention covers a novel construction whereby a short beam can be used and the draught attachment can be readily adjusted as the character of the soil may require.

A harrow has been patented by Mr. Phillip Hense, of Dyersville, Iowa. This harrow can be formed of one, two, or three sections, as may be desired, the invention covering a novel combination and construction of parts, to facilitate the operating and controlling of harrows and promote their durability.

A combined gang and subsoil plow has been patented by Mr. William S. Haven, of Shreveport, La. This invention covers a novel construction of a double plow which may be drawn through old ridges, turning the soil into furrows previously formed, so new ridges can be readily completed, and the labor of preparing land for the next crop greatly lessened.

A combined seed planter and cultivator has been patented by Mr. Thomas B. Shannon, of Huntsville, Tex. The construction is such that when the machine is to be used for cultivating plants the hopper and its attachments can be removed, or the clutches can be thrown out of gear with the wheels to prevent the seed dropping appliances from operating.

An attachment for cultivators has been patented by Mr. Frederick Albrecht, of Ohio, Ill. It is made with a clamp secured to the standard of the cultivator, and holding the arm of a crank rod, to the other end of which is secured a blade by a hook bolt, so the blade will be secured to the standard, and can be readily adjusted.

A plow attachment has been patented by Mr. William P. Brown, of Zanesville, O. The invention provides an adjustable connection that will allow the shovels to be made unusually long, so that as they wear away they may be set lower, also allowing one shovel to be set higher than the other, where plants to be cultivated are on different levels, with other novel features.

## MISCELLANEOUS INVENTIONS.

A metallic cap for corks has been patented by Mr. Alfred L. Bernardin, of Evansville, Ind. The cap has, in addition to an open ended slot, elevations or nodules upon its upper surface, to effectually hold the binding wire thereon, and thus bind the cap upon the stoppers or corks.

A machine for cutting glass has been patented by Mr. Price C. Claffin, of Stevens Point, Wis. A bed is mounted to be revolved on a suitable frame, with a guide arm to project radially over the bed, a cutter holder for the cutting tool being fixed in a slot in the guide arm, with other novel features.

A churn power has been patented by Mr. Fredrick F. Williams, of Salado, Texas. A vertically movable carriage has a drum with a rope wound on it, the upper end being secured, and from the drum a wheel on the carriage is operated by gearing, the wheel being connected with the dasher staff.

A combined folding chair and bath tub has been patented by Scott J. Beach and Sarah A. Beach, of Norfolk, Conn. This invention covers novel details and combinations of parts for an apparatus which can be adjusted for use as a large or small chair, a large or small cot, or a large or small bath tub.

A lady's bicycle has been patented by Mr. Louis P. Valiquet, of New York city. It is constructed with a frame suspended from and below the axles, in such manner that it can be conveniently used by ladies, and is further designed to promote efficiency in the application of power to bicycles.

A tile ditcher has been patented by Mr. Oscar Booth, of Creston, Iowa. It is mounted on wheels to move over the ground to dig trenches for laying tiles or drain pipes, and is intended to cut a trench to any required depth at one operation, to raise the earth, and to carry it some distance to one side of the trench.

A fire escape has been patented by Mr. Augustus H. Terwilliger, of Newburg, N. Y. It is adapted to be built into the wall of a building, and to be closed when not in use by a sliding shield or cover, and is also calculated to facilitate the entrance of firemen to different stories of a building in case of fire.

A wedge shaped air balloon has been patented by Mr. George Wellner, of Brunn, Austria-Hungary. It has a vertical edge at the front end and a transverse edge at the rear end, with an inverted

cone shaped projection on its belly to which the car is fastened, the balloon being calculated to ascend and descend obliquely.

A bag fastener and holder has been patented by Mr. John W. Rickart, of Quincy, Ill. This invention provides for peculiarly constructed hooking appliances, so the hooks of the fastening are not liable to be accidentally detached when the bag is closed, the contents tending to tighten the fastening, and the hooks forming means of suspending the bag when open.

A device for suspending hogs has been patented by Mr. William G. Reed, of Avon, Ind. The object is to take hogs from the scalding tub or bristling table and hang them for further work, for which a special construction is provided, intended to be especially useful on farms and by country butchers doing a small business.

An apparatus for tanning hides has been patented by Mr. Emile de Solminiac, of Lorient, France. A skeleton drum or cylinder is provided, upon the circumference of which the hides or skins are held and stretched, secured by clips, centrifugal action being utilized for causing the penetration of the tanning material through the pores of the hide or skin.

A dynamo electric machine has been patented by Mr. Elisha B. Cutton, of Kingsbridge, N. Y. It is constructed with the parts of the field magnet that receive the wire tapered from the pole pieces to the yoke, to make a sufficiently strong field with less iron and less wire, and consequently a lower resistance and smaller percentage of power than are now used.

A wheel for vehicles has been patented by Mr. Alonzo E. Butler, of Leipsic, O. The invention covers a novel construction and combination of the hub, rim, and spokes, and manner of attaching and adjusting the spokes, making a light, cheap, and durable wheel, in which the spokes can be readily tightened or taken out.

A still for the manufacture of brandy has been patented by Mr. John M. Foy, of San Francisco, Cal. The heater is made in one with the still, the bottom of the latter being double or with a jacket, and there are several novel features enabling the operations to be carried on rapidly, and avoiding the delays usually necessary for charging and discharging.

A device for sharpening machine knives has been patented by Mr. Robert O. Owen, of Lynchburg, Va. This invention covers a peculiar construction and arrangement of a sharpening disk or wheel mounted in a frame and arranged in relation to the machine knife so as to be adjusted to or from the same while the latter is in motion.

An apparatus for making Roman candles has been patented by Messrs. Otto A. Minch, Hermann Minch, and Frank Minch, of Newark, N. J. This invention covers various novel details of construction whereby the clay, powder, stars, and combustible composition can be introduced into the cases in regular order, one, two, or more series of powder, stars, etc., as desired.

A churning device has been patented by Mr. Alexander Cairns, of Mount Hope, Wis. In combination with a block adapted to be coupled to a pivot is a revolving churn box, a shaft connected with the block by a universal joint, and a transverse shaft connected by gearing with the shaft connected with the block, the transverse shaft having crankhandles at its ends.

A bone black drier has been patented by Mr. Edward P. Eastwick, of New York city. This invention covers a novel construction for applying currents of air to absorb and carry off the moisture the bone black contains, and to oxidize the organic matter therein. A bone black kiln has also been patented by the same inventor for reburning and reactivating bone black, and especially adapted for use in sugar refining.

A marine record preserver has been patented by Mr. Duncan Sinclair, of Wai-Nui Omata, Wellington, New Zealand. It is constructed with outer and inner cases connected at their open lower ends by an annular plate, and having a cork filling and separable tube attached at its lower end to a cap plate screwing into the annular bottom plate, for preserving records of ships lost at sea, etc.

A polarized telegraphic relay has been patented by Mr. Wirt B. Harvey, of Memphis, Tenn. Combined with a swinging armature, having one end held between the two poles of a magnet, is a coil held opposite the other end of the armature, the coil having a core part screw threaded, so by turning the core and the coil thereon the coil can be adjusted a greater or less distance from the end of the armature.

An axle gauge has been patented by Mr. Hector McQuarry, of Allandale, Ontario, Canada. The object of this invention is to provide a simple, readily adjustable, and reliable tool for bending the arms of vehicle axles downward to give the proper "set" to cause the wheels to travel on a plumb spoke, and forward to give the proper "gather" to the wheels, for which a novel construction is provided.

A printing press has been patented by Mr. Thomas Forknall, of Manchester, Eng. The invention consists in a ring or circular plate held in place on the yoke by screws and having its outer circular edges screw threaded, on which plate a ring nut is screwed, to facilitate the adjusting of the platen according to the thickness of the paper, as by turning the ring nut the platen will be pressed a greater or less distance from the yoke.

A photographic camera has been patented by Mr. Walter Clark, of New York city. It combines an adjustable lens with a device for holding and exposing the sensitive plate, a focusing glass in the top or side of the camera box, a reflector, adjustable into or out of line with the lens, for throwing the image on the focusing glass and afterward exposing the sensitive plate, with other novel features. The same inventor has also obtained another patent for a camera that does not require the plate holder to be removed to obtain a focus, and which has shutters for instantaneous photographing, operated automatically by the lens holder, for field work, the camera being fitted in a case or bag of novel construction and arrangement.

## Special.

## LIFE IN SIAM.

In 1841 a young man, named Jno. H. Chandler, felt it to be his duty to go to Burmah and join in the work of Baptist missions in that country. The name of Chandler is an honored one in the literature and labor of the Baptist Church; and on this gentleman and his accomplished wife has fallen a just share of the honor which follows devoted toil. Mr. Chandler at first went only as a lay missionary, but subsequently entered the ministry as a regularly ordained clergyman. He brought to the work the skill of a mechanical engineer and a thorough mastery of the arts of printing and type-founding. He was soon transferred to Siam, and made his home at Bangkok, the capital of the kingdom. Here his ready facility for acquiring the language made him both useful and busy. He wrote several religious and scientific works in Siamese, and rendered himself valuable to the king and his court as translator of important documents. His wife, formerly Miss Crossman, of Utica, N. Y., made herself eminently useful in connection with the work of the mission. Both in Burmah and Siam she was at the head of schools for the natives, and in later years she had at Bangkok a school for the children of the nobles and princes.

One of the almost inevitable results of mission work is the breaking down of the health of those engaged in it. And this is especially the case in such a debilitating climate as that of Siam. This breaking down generally comes after a short term of service. The Rev. Mr. Chandler and his wife were no exceptions in this respect, to the ordinary lot of missionaries. Their labors had been arduous and various. Mr. Chandler had served with the Foreign Missionary Society till 1856. Then he was occupied with various evangelical and literary duties, until in 1859 he became U. S. Consul at Bangkok. He was also tutor to the present King of Siam, whose full name is Ohra Bard Somdech Paraumind Maha Chulalongkorn Chub Chai Chow Chou Yuhua. The official title of this monarch is simply "Chulalongkorn."

The undermining of Mr. Chandler's health went on gradually for years, until in 1872 he entirely broke down. In Bangkok he received medical treatment, and also on his way to this country and back again in 1876. But the effect of all this was rather to patch up than to cure. It was not until 1880 that he and his wife began to experience substantial relief. But we will let them tell their own story, which will be found exceedingly interesting. Recently a correspondent of one of our daily papers visited them at their home in Camden, N. J., at which place they have been residing since their return from Siam. He found them hearty and cheerful people, considerably past middle life, and giving no indication, either in appearance or manner, of ever having been miserable invalids.

The Rev. Mr. Chandler, conversing freely about his experience, said, substantially:

"After coming to this country in 1876 I returned to Siam with somewhat improved health, intending to stay six years. Such was my condition, however, and that of my wife, that we were compelled to return in three. I was a complete wreck. My lung weakness was so great that for months at a time I could not write or read. The nerves of my stomach were totally demoralized. My food would not digest. I had to lay aside all my teaching and missionary labor. I required an attendant all the time, and was unable to do either mental or physical work. My sleep was broken and unsatisfactory. I was also troubled with palpitation of the heart, with diabetes and with an obstinate catarrh of ten years' standing. Altogether I was a very, very sick man."

"While thus a sufferer, the Rev. Dr. MacFarland, a Presbyterian missionary at Bangkok, called my attention to 'Compound Oxygen.' He had tried it for indigestion and general debility, and had found it very beneficial."

"While I was on my way home I found myself in a very critical condition, and almost gave up the hope of recovering health. On reaching Philadelphia I consulted Drs. Starkey & Palen, and at once began the use of Compound Oxygen. It acted like a charm. Very soon I felt signs of returning strength. In the matter of diabetes, the relief was particularly noticeable. Improvement went on gradually, but surely. I became so that I could eat with regularity and really enjoy my food. In time my old symptoms of wretchedness and weariness passed away, and I was myself again."

"To what extent are you able to perform such labors as you formerly could?" was asked.

"You may judge of my strength and health when I tell you that I was with the Siamese Embassy in New York and Washington a few months ago, traveling with them and going about as freely and energetically as any of them. Compound Oxygen has so recruited my system that the unusual exercise of travel had no unpleasant effect on me; nor was I in any respect the worse for my journey. I think I am now able to endure almost as severe labors as at any period of my life."

Mrs. Chandler, who seemed to be in excellent health, then cheerfully gave her experience. She said in substance:

"From my early girlhood I had been ambitious to attain the highest degree of knowledge and of usefulness. I wanted to go as a missionary to some heathen country, and I labored to be prepared for it. My gift for the acquisition of languages proved of great service to me. First, I assisted in a missionary school in Burmah; then I taught schools of the native Siamese; I had, among others, the brother of the present king under my care and a number of the children of the nobility, to whom I taught the English language. I also did much translating. So arduous were my labors that my health, which had for some time been failing, broke down in 1873. I had been of buoyant spirit, but my nerves were exhausted, and I sank down. Vitality gave out. Endurance failed. I gave up all my work. I was so low that on arriving in this country in 1876 no physician would give me any encouragement. When I returned to Siam, it was with only partially restored health. I broke down again, and for months was absolutely helpless. I was nervous to a frightful extent, and, in spite of the most earnest endeavors, could not obtain satisfactory sleep. We could not see our way clear to leave Bangkok until 1880. When I began to pack, I was afraid I could not go through such a heavy undertaking. In the midst of this terrible state of depression and dejection Dr. MacFarland handed my husband one of the 'Starkey & Palen' books about Compound Oxygen. It seemed to me that this must be a beneficial remedy. On the homeward voyage I improved a little."

"On arriving here I at once sought Starkey & Palen, procured a home treatment and faithfully followed the directions. Has it done me good? Look at me now. I am restored to my old good health. There could have been no severer test than in my case."

In concluding a very pleasant conversation, the Rev. Mr. Chandler and his excellent lady both remarked that with gratitude to God for their restoration, they are at all times free to speak of what Drs. Starkey & Palen

have done for them with Compound Oxygen. Considering the remedy completely adapted to their cases and to similar ones, they have no hesitation in making their recovery known, for the benefit of the great army of invalids who are seeking relief and who may be happy in thus finding it.

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