The Transportation of Wheat.

The cost per bushel of bringing wheat from the great centers of production and distribution to the leading markets of Europe has been elaborately compared and tabulated as follows by Mr. R. Meyer, in the *Austrian Monthly of Social Science and Political Economy:*

From	To	
San Francisco	England	$0.36@$0.39
The "Far West"	Atlantic Harbor	40
New York	Liverpool	10
Chicago	Liverpool	19
Bombay	England	13
Calcutta	England *via* Suez	18@ 29
Calcutta	England *via* Cape	15@ 20
Australia	England	21
Buenos Ayres	Havre	16@ 20
Odessa	England or Antwerp	13@ 22
Podwoloczisk a	Delhi	44
Brody	Delhi	42
Brody	Hamburg	39
Ibraila	London	18
Galacz	Hamburg	57
Budapest	Hamburg	31
Budapest	Liverpool *via* Fiume	28
Lemberg	Frankfort-on-the-Main	26
Vienna	Frankfort-on-the-Main	24
Vienna	Fiume	21
Vienna	Trieste	21

From Odessa is shipped the wheat of Southern Russia. Brody, in Northern Galicia, collects the wheat of the upper valleys of the rivers of Southwestern Russia. Lemberg, close by, is the capital of Galicia. Ibraila is the shipping point of Wallachia. Galacz ships the wheat of the upper valley of the Danube. Budapest is the central point of Hungary, as Vienna is of Austria. It costs nearly as much to carry wheat from Brody to Lemberg, 58 miles (no railway), as it does from Chicago to Liverpool. From Vienna to Trieste is about 250 miles by rail; in cost of transportation it is further than from Calcutta to England around the Cape. California can easily compete with Hungary in the markets of Western Europe, the cost of raising the wheat being the same.

The Blue Sky.

M. Chappuis thinks that the blue of the sky may be due to ozone present in the upper regions of the air. He argues that the electrical discharges constantly taking place will produce ozone; and the recent researches of himself and M. Hautefeuille have shown that ozone, at any rate when near its condensation point, is of a blue tint. He has examined the absorption-spectrum of ozone and finds nine dark bands in it, three at least of which correspond with known bands in the telluric spectrum.

THE VELOCIPEDE HAND CAR

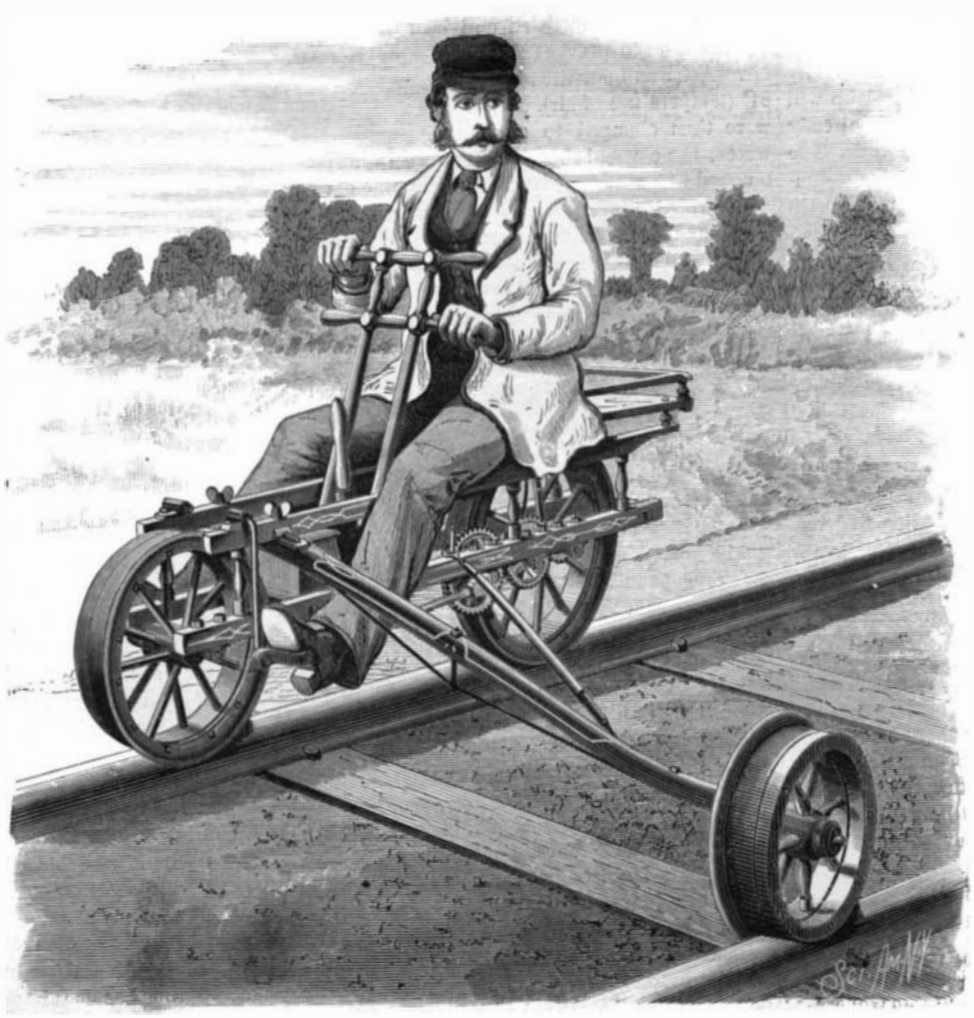
A railway track offers peculiar facilities for velocipede travel, since it is perfectly smooth and has an easy grade, and no attention whatever need be paid to guiding the vehicle, nor to balancing to maintain a vertical position. A vehicle of this sort has a wide range of application, and will be found of great utility to railway men, for roadmasters, engineers, superintendents of bridges, telegraph line repairers, track supervisors, wood and tie inspectors, track walkers, and others whose duties take them over the track for various purposes. In fact the velocipede shown in the engraving is already in use by a large number of the principal roads of the country, and they are highly recommended by officials who have adopted them.

The machine may be easily propelled at the rate of eight to ten miles per hour, and it is not difficult to run it at a speed of twelve to eighteen miles. The inventor informs us that he has many times made a run of thirty miles in less than two hours with one of them.

The engraving gives a good general idea of the velocipede. It is very light, weighing only about 125 pounds, and is therefore easily removed from the track when occasion requires. The frame, wheels, and arm are of wood, all of the parts being properly braced. The arm is adjustable, and readily removable for storage or shipment. The power is applied to the rear wheel by a hand lever in front of the operator and by stirrups for the feet, which are connected with the propelling machinery by levers. The handle between the levers controls the brake. If required, the machine may be constructed to carry two persons. The tread of the wheels is cast iron, and in the construction of the machine iron and wood are judiciously combined to form a strong yet light and compact vehicle.

The confidence of the manufacturers of this velocipede is so great that they offer to send out the machines on trial, to railroad officials, to be sold on approval.

Further information may be obtained by addressing Messrs. George S. Sheffield & Co., Three Rivers, Mich.



SHEFFIELD'S VELOCIPEDE HAND CAR.

Powerful Machinery.

Speaking of the machinery used in our Western mines, a prominent mining engineer recently said that in some of the deep mines there are employed single engines capable of raising a column of water weighing 90,000 pounds a distance of 1,600 feet, seven times a minute; also, that safety cages used in mines travel at the rate of 3,000 feet a minute, and propelled by a single engine are able to hoist 1,200 tons of ore a distance of 1,500 feet in one day.

IMPROVED REFRIGERATOR.

The invention shown in the annexed engraving possesses several points of novelty, which should commend it to the notice of manufacturers and users of refrigerators, as it not only aims to maintain a low temperature, but to sweeten

TOOPE'S DRY AIR REFRIGERATOR

and purify the air and to absorb moisture and destroy all odors.

In this refrigerator the air, in passing from the ice chamber to the provision chamber, traverses a purifying chamber and enters the provision chamber perfectly dry and pure. The air purifying chamber is located inside the space usually filled with charcoal or other non-conductor, and beside acting as a purifier it assists in preventing the entrance of heat and in preserving the required low temperature. In Toope's refrigerator the inner wall of the provision chamber and the casing surrounding the ice chamber are perforated, and the air in passing from the cooling chamber to the provision chamber is forced to traverse a layer of air-purifying material, which filters out everything objectionable, and leaves the air in the best state for the purpose of cooling and preserving the contents of the provision compartment. Beside this action of the absorbent material it receives the emanations from the provisions and destroys all odors. The action of the absorbent is continuous, and no renewal of it is required. When the cover of the ice chamber is opened it acts as a piston, and draws upward from the purifying chamber the air contained by it, and in this manner reverses the direction of the air currents in the refrigerator and ventilates the absorbent.

This useful invention was recently patented by Mr. Charles Toope, 353 East 78th st., New York city.

MISCELLANEOUS INVENTIONS.

Improvements in car brakes of that type which automatically apply the brakes through the movement of the draw-bar, have been patented by Mr. Henry Gallager, of Savannah, Ga. The improvements contemplate the constant pressure of the brakes upon the wheels whenever the draw-bar is in its normal position of rest, and which brakes are released or withdrawn from the wheels whenever the draught strain pulls the draw-bar out, or whenever the draw-bars are driven in by backing, so that whenever the locomotive approaches a condition of rest, whether in moving forward or backward, the brakes commence to be applied automatically, but are not applied when the power of the locomotive is being transmitted to the cars for transportation.

Mr. James M. Caraway, of Beloit, Kan., has patented a simple and effective machine for grading roads, making ditches, digging potatoes, etc. It cannot be described without engravings.

Mr. Julius Heimann, of New York city, has patented a trimming for garments which consists in two or more narrow strips of felt cloth sewed edge to edge in concentric or parallel overlapping rows. The rows may be further ornamented by embroidered stitching of colors to harmonize with the tints of the strips.

Mr. George W. Brumm, of Boise City, Idaho Ter., has patented a book protector, for containing a book and securing it from injury, and to securely fasten said case and book to desk, pew, or other permanent object.

An improved fence post, patented by Mr. Patrick Coughlin, of Prescott, Ontario, Canada, is provided with wings, which spread under ground, and prevent the post from being raised by the frost.

A nut lock, so constructed as to prevent the nuts from working loose or off bolts exposed to an intermittent or constant jarring, and which will allow the nuts to be readily screwed on and off, as required, has been patented by Mr. John W. Bunker, of Palmer, Texas.

Mr. Augustin Personne, of Paris, France, has patented an improvement in that class of electric clocks in which an electro-magnet is used to automatically give an impulse to the pendulum of the clock every time its oscillation decreases below a certain amplitude. For this purpose the electric current is, when necessary, sent through the coils of the magnet by means of a device mounted upon the pendulum, and having a differential motion caused and controlled by the resistance opposed to it by the air during its oscillation.

Mr. Max Rubin, of New York city, has patented an improvement in the class of shawl straps in which the straps are wound around a rod to clasp the package, the object being to simplify the construction and lessen the cost of manufacture.

An improved safety lamp has been patented by Mr. Mark A. Heath, of Providence, R. I. It has a chamber containing carbonic acid gas, which escapes when the lamp is broken, the intention being that the gas shall extinguish the flame.

An improved hydraulic air compressor has been patented by Mr. William R. Freeman, of San Antonio, Texas. The compressing cylinder being filled with air or gas, as the case may be, the air inlet is closed, as is also the waste water cock. The water supply cock is opened, allowing the water to rise in the cylinder, compressing the air or gas therein to a tension equal to the water pressure, and indicated by the pressure gauge. Communication being then opened by means of the three-way cock between the compressing cylinder and the nozzle, the air is allowed to pass to the place of storage or use. The air cock is then turned to communicate with the outer air or gas supply, the water cock is closed, and the waste cock opened, allowing the water to escape from the compressing cylinder, which at the same time becomes filled with air or gas, and the operation repeated.

Mr. Alvin H. Fogg, of Rockland, Me., has patented a strawberry car, designed for use in cultivating and gathering strawberries, cranberries, and in weeding and thinning out all kinds of root plants.