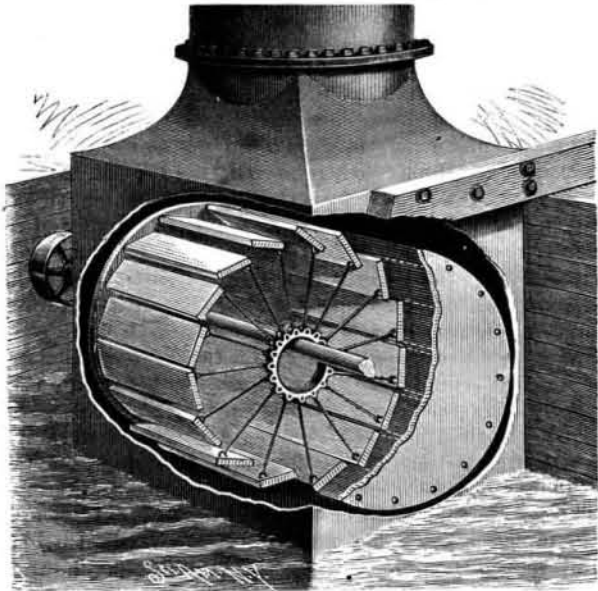


AN IMPROVED WATER WHEEL.

The simple form of wheel shown in the illustration is arranged to be operated so that the water passing through the flume twice exerts its force on the wheel, each paddle being twice acted upon by the water at every revolution of the wheel. The improvement has been patented by Mr. Asa B. Frame, of Boyden, Iowa. The wheel has circular end pieces carried by a shaft journaled in bearings in opposite sides of the flume, the shaft having a pulley from which power is transmitted. The blades or paddles arranged around the

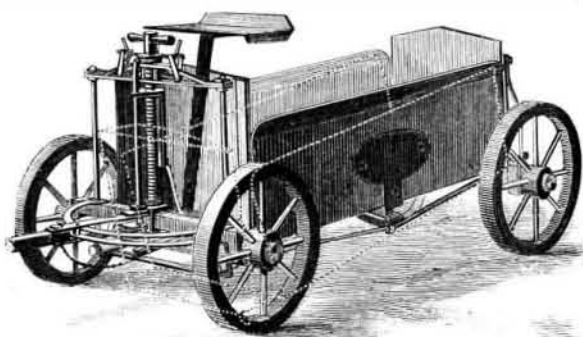


FRAME'S WATER WHEEL.

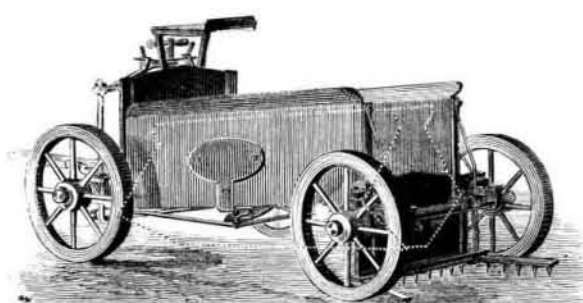
wheel are each pivoted at one edge at both ends in the outer edge of the circular end pieces, and the center of the other edge of each blade is connected by means of a rod with a ring hung loosely on the central shaft. Any number of these rings may be used, according to the size of the wheel, an independent rod connecting the ring with each blade. As the ring hangs by gravity on the shaft, the inclination of each blade relatively to the center shaft is constantly changing as the wheel revolves, each blade as it approaches the top being brought into a nearly horizontal position to receive the full force of the water, the blade being then tilted to a nearly vertical position as it passes down through the water, and again being shifted to a horizontal position at the bottom, where it receives the force of the water a second time, to be afterward thrown back into the vertical position again, so that it passes easily up against the current of the water. The blades at the top and bottom of the wheel, upon which the water exerts its force, are each designed in their varying positions to afford an equal amount of power in proportion to the amount of water used.

IMPROVED SELF-LOADING VEHICLES AND DUMP WAGONS.

In the improvements represented in the accompanying illustrations, for which two patents have been



FISCHER'S SELF-LOADING VEHICLE.



FISCHER'S RAKE ATTACHMENT FOR WAGONS.

issued to Mr. George F. Fischer, of No. 235 Jay Street, Rochester, N. Y., it has been the design of the inventor to furnish trucks which are light, simple, strong, and which can be taken apart and put together quickly and with great precision.

The front portion of the body of the self-loading vehicle consists of a horizontal, skeletal, segmental frame, which supports the front board and serves as a guide for the clevis to which the pole is secured. Beneath this frame is a shovel, whose bottom is inclined downward and dish-shaped, the shovel being mainly supported by a yoke whose upright members are threaded at their upper ends and connected by a truss, centrally through which passes a vertical adjusting screw connected at its lower end with the shovel, and having a handle or cross bar in easy reach of the driver. By turning this screw in one direction the shovel is lowered, and the opposite turning of the screw raises the shovel. The adjusting screw is also adapted, by an adjustable connection, to raise and lower a dumping block having attached links adapted to engage the body of the wagon near its forward end. The wagon body is made in two L-shaped sections, the sections being practically hinged at their angles upon truss rods. When the body is in position to carry a load, the horizontal members of these sections closely approach each other, but they may be readily opened and carried to a dumping position by operating the adjusting screw to move the dumping block and links connected with the horizontal or bottom portion of each section of the body. The wagon body is independent of the front board and of the tail board, and the latter has a hinge connection with the rear axle. To load the wagon, the turning of the adjusting screw lowers the front portion of the body and the shovel until the latter strikes the ground, when, by driving the team forward, over or through a pile of coal, sand, gravel, or other material to be loaded, the latter is forced upward into the wagon body, and the body is then brought upward into its carrying position by turning the screw in the opposite direction. To dump the wagon, the dumping block is operated through a changed connection with the adjusting screw, so that by turning the latter the bottom members of the body are forced downward and outward, the side members being forced inward and downward, whereby the load is dumped, the body being subsequently returned to its normal position by turning the screw in the opposite direction.

The rake attachment is especially designed for dump wagons, and it provides means whereby the dirt, gravel, or other material dumped may be readily lifted and distributed over a large area. Its construction is such that it acts automatically with the dropping of the material from the vehicle, and when the latter is returned to a carrying position the rake is restored to its normal place at the rear of the wagon body. Upon the rear axle are two vertical guides in which the tail board is adapted to have a pivotal movement, and on each rear wheel, near the hub, is an eccentric flange. The body of the vehicle is in two longitudinal L-shaped sections, as in the self-loading wagon above described, the sections turning upon truss rods passed through blocks on the axle and through the lower ends of the guides and the tail board. The lower portion of the tail board extends beyond the sides of the body, and on its lower edge are teeth adapted for raking purposes. From each side of the upper portion of the tail board extends a bracket in which turns the upper end of a vertical shaft upon which is a spiral thread having a long outside pitch, and the lower end of each shaft carries a rake-head provided with teeth. Each shaft passes through a keyhole slot of a reciprocating block, a jaw of each of the blocks receiving the eccentric flange near the hub of each rear wheel. When the tail board is in its upper position the rakes are folded inward beneath the axle, but when the load is dumped the downward movement of the body of the wagon forces the tail board downward until the teeth on its lower edge engage the material dumped. As the tail board drops, the threads of the vertical shafts are drawn through the reciprocating blocks, and the rake heads carried by these shafts are thrown outward back of the rear wheels and diagonally across them. When the wagon is now drawn forward over the material dumped, the shafts are rocked by means of the reciprocating blocks, so that the rake heads are carried from their outer position to the center of the tail board and then back again, quickly spreading the dumped material over a large area, the work being done by the vehicle and the team.

The Telegraph in China.

The United States minister at Peking, China, reports to the State Department that the Chinese telegraph system has been connected with the Russian system, so that messages may now be sent overland be-

tween any part of China, Russia, Europe, and by cable to Africa, North and South America, and Australia. The whole world is now wired and telegraphically connected.

FOOT RACE OF MARKET PORTERS AT PARIS.

Everybody knows those strong market porters who carry upon their backs bags of flour that sometimes weigh 150 pounds. They are lusty fellows, with square, massive shoulders, who are endowed with extraordinary physical energy.

We have thought it of interest to record the feat that has just been executed by one of the most remarkable of them, Jean Labasse, the victor in a race of a new kind, got up by a Parisian journal. It was a question of starting from Feydeau Street with a bag weighing 220 pounds and proceeding to the octroi of Corbeil, a distance of 19 miles. There were ten com-

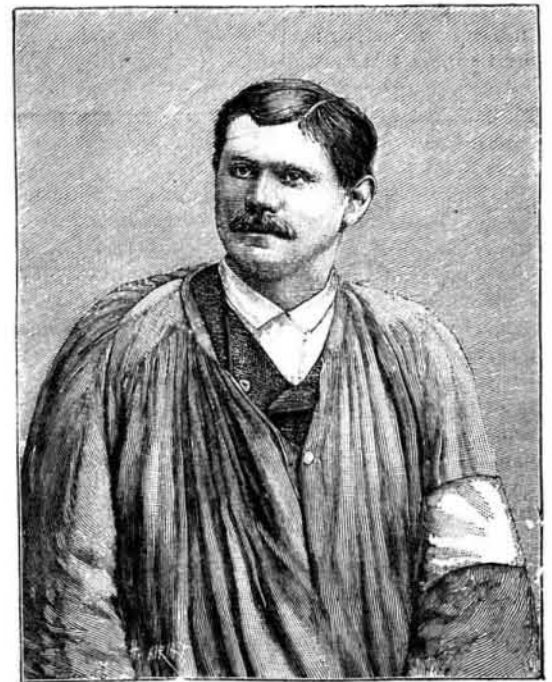


Fig. 2.—PORTRAIT OF JEAN LABASSE.

petitors. The start took place at 8 o'clock in the morning of the 6th of March. Each porter carried upon his shoulder a bag containing a mixture of sand and sawdust weighing 220 pounds. Jean Labasse was the first to arrive, at 10 o'clock at night, having traveled the distance of 19 miles in 14 hours.

Labasse was born at Saint-Andre-d'Appel, in Dordogne, March 19, 1869, and is consequently twenty-four years of age. He is 5 feet 9 inches in height,



Fig. 1.—FOOT RACE OF MARKET PORTERS AT PARIS.

and of herculean strength. At the time of the race, he rested but twice on the way, first at Juvisy, after making 14 miles, and next at Evry-Petit-Bourg, at about 3 miles from the goal. He distanced all his competitors by several hours. He was not much fatigued at the finish.

Received at Corbeil by the municipality and a flourish of trumpets, he was the object of the ovations of the population, which had been awaiting him since six o'clock in the evening.

Although Labasse is remarkable by the development of his muscles, we must add that he does not shine by the qualities of instruction. He can neither read nor write.

We shall complete this note by recalling that a tentative similar to that of which Labasse is the hero once found a victim among the market porters. One of them had wagered that he could carry a 350 pound bag of flour to Corbeil. Having got as far as Evry, the Hercules drank a glass of cold water and dropped stone dead. Such useless excesses of muscular fatigue are not unaccompanied with danger.—*La Nature*.