

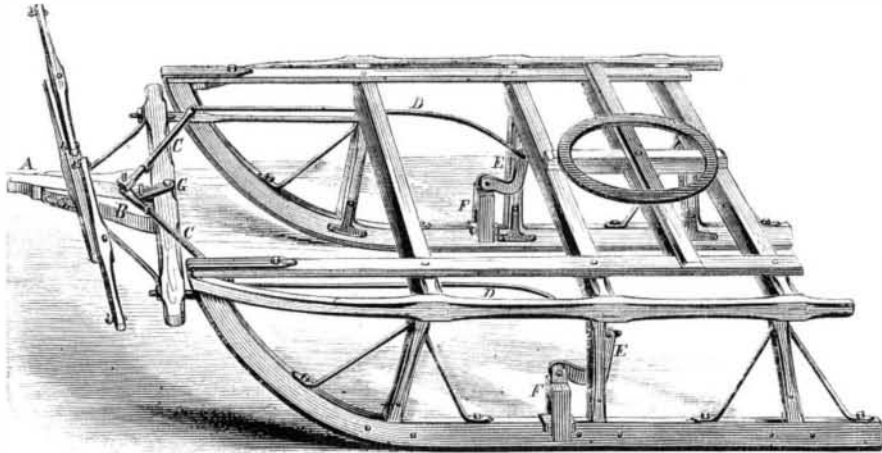
Improved Sled Brake.

Brakes for receiving the gravitation of the load on inclines are in frequent use on wheeled vehicles, and similar appendages have been applied to runners traveling on snow. None, however, seem to be more effective and simpler than that illustrated in the engraving. Its construction and operation may be easily comprehended.

The pole, A, is allowed to move backward and forward in the "hounds," B, being kept in place by a bolt passing through the "hounds," and a slot in the pole, or by any other suitable mechanical device. To the end of the pole, on the top is secured by a bolt, two levers, C, which are connected with bars, D, to a bell crank, E, on each runner. This bell crank engages with a forked slide, F, extending on each side the runner and working vertically in a simple guide.

When the horses are backed they throw the slides into the snow or ice by means of the retrogression of the pole through the medium of the levers. If while no pulling force is exerted by the draft animals the driver desires that the brakes shall not act, he has only to move with his foot a simple lever stop, G, which holds the pole extended.

It is evidently a simple contrivance, efficient, and not liable to become deranged in using. One advantage is, that the edges of the brake are narrow and do not cut up and ruin the road. It was patented by H. L. Naramore, of Cummington, Mass., through the Scientific American Patent Agency, Sept. 11th, 1866. For more details and for purchase of rights and territory, address Mr. Naramore as above.



NARAMORE'S SLED BRAKE.

RAILROAD ITEMS.

The United States have 36,896.26 miles of railroad completed and now in working order. This is an increase of road brought into use during the year of 1,535 miles, exclusive of some 200 miles of city railroads added to the length reported a year ago. The State of Pennsylvania owns 4,650 miles of track. Ohio ranks second, with 3,401 miles, followed by Illinois with 3,250 miles, and New York with 3,025 miles of road now in working order. Distributed into geographical regions, the New England and six Southern interior States own each one ninth; the five Middle Atlantic States one quarter; the twelve Northern interior States two fifths; the two Pacific States one seventh; and the five Southern Atlantic States one seventh, of the total length given above. In cost per mile the highest priced roads are the through lines of New Jersey, the Hudson River, the Baltimore and Ohio, and the Reading Railroads, in their order. The total cost of all the roads in the country amounts to \$1,502,464,085, at an average cost per mile of \$40,723. From a length of only three miles in 1828, the railroads of the country have steadily increased, until now the United States are traversed by a longer track than is found in all other parts of the world together, and sufficient to girdle the whole earth at the equator with a double track line.

The organization of a new Pacific Railroad Company composed of Southern capitalists and prominent men is announced. The route proposed is from some convenient point on the Gulf of Mexico, by an air-line route 1,268 miles long to the Pacific Ocean. The aid of Congress in constructing theread is relied on, as the company claim that if the annual expenses to the government for military purposes along the line of their proposed route were to be capitalized, and the bonds thus created loaned to the company as the road progresses, the road would be completed without incurring expense to the country above what otherwise must be expended for years to come in furnishing military protection to the region through which the road is to pass.

A memorial has been presented to Congress praying for a charter to build a railroad from Galveston to Kansas. The project is to build a double track, to be owned either by the state or by a corporation, and has this peculiarity, that like the canals the track is to left open for free competition to all individuals and transportation companies. The rolling stock will be owned and run by these parties, they paying a certain toll the owners of the track. By this arrangement the capacity of the road, it is claimed, may be increased tenfold and the cost of transportation reduced one half.

The estimates of the cost of the Northern Pacific Railroad prepared by Brevet Brig.-Gen. Simpson are as follows:—For construction of 204 miles of road, \$150,000,000; for rolling stock and fixtures at \$11,200 per mile, \$23,000,000; for steamers on the Missouri and Columbia Rivers, \$3,000,000; for engineering and contingencies, \$10,000,000; for tunneling, beyond the estimated average per mile, \$11,078,000. These and other items make a total of \$206,600,000, or an average per mile of \$101,040.

The Central Pacific Railroad Company have received from the United States 42,000 acres of land. This area was granted by a patent prepared at the General Land Office, which is prefaced by a beautiful map of the United States, handsomely colored, exhibiting all the states and territories with great distinctness, as also the line of the Pacific Railroad from the Mississippi to the Pacific Ocean.

The rolling stock owned by the railways of Great Britain and Ireland at the close of the year 1866 comprised 7,414 locomotives, nearly 18,000 passenger carriages, nearly 7,000 other cars attached to passenger trains, more than 220,000 freight cars, making in all more than a quarter of a million carriages, locomotives and cars, the increase for the year being 15,061.

Some of the New York railroads at the last session of the State Legislature succeeded in obtaining an official condemnation of the practice of granting free passes over the roads. These roads are now as anxiously petitioning the same body to repeal the prohibitory enactment. The cause of complaint is not that the principle is not right, but that rival railroads

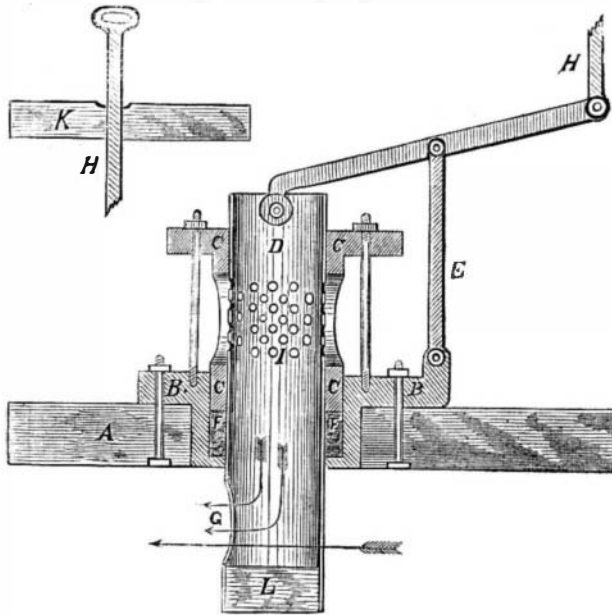
of other states have secured a large increase of business by a liberal distribution of passes among the freight shippers and drovers of the West.

The New York Pneumatic Company, recently organized, are taking the preliminary steps toward uniting this city with Brooklyn and Jersey City. A party of engineers are now engaged in taking soundings in the East and North Rivers, with a view of locating a line for the proposed pneumatic railway. The data obtained so far are said to be highly favorable.

BAGLEY'S PATENT BILGE WATER DISCHARGE.

The annexed engraving represents a sectional view of this new device for discharging water from the holds of vessels of any kind. A represents the bottom planking of a vessel; B is a cast-iron bed plate secured firmly down with bolts; C is a cast-iron gland, with three orifices, firmly secured down on the packing, F. D is a plunger made of gas pipe; E is a fulcrum, and F the packing of rubber; G is an orifice in the lower end of the plunger; H is an iron rod that connects to the lever; I are the orifices in the upper end of the plunger; L is a wooden plug in the lower end of the plunger; K is a sectional portion of the deck.

The operation of this new machine is as follows: A current of water, running past the plunger in the direction of the



straight arrow, forms a vacuum at the orifice, G; consequently a suction is thereby formed through the plunger. The bilge water in the vessel will flow through the orifices in the gland, C, thence through the orifices in the plunger, down in the direction of the bent arrows, and out at the orifice, G. By this means all the bilge water may escape from the vessel. By raising the lever the plunger is forced down; then the machine is in motion. As soon as the bilge water is all discharged, to close it up push the lever down to the deck, K, which will bring the orifice, G, above the packing, F, making it perfectly water-tight and safe.

The working of this invention is all the same whether the vessel is moving through the water, or is stationary and the current is flowing past her.

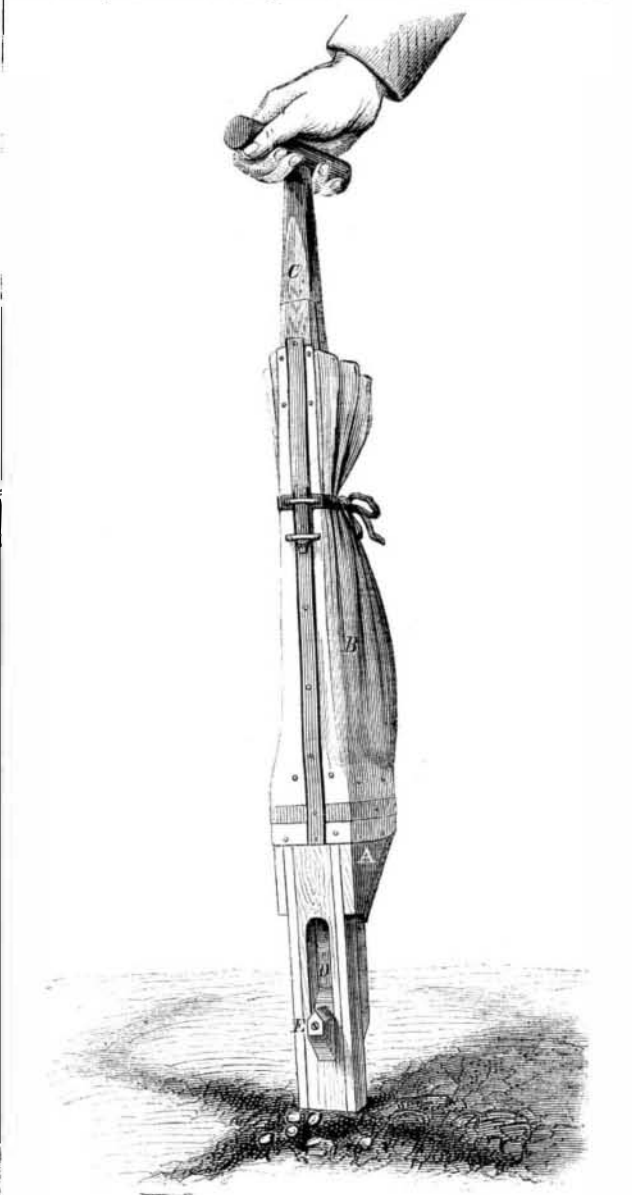
Port rights for sale on reasonable terms by applying to J. M. Bagley, 422½ North Third street, St. Louis, Mo., or M. F. Bagley, Alton, Ill.

A DEEP MINE.—A coal mine at Dunkensfield, Cheshire, England, is 2060 feet deep to the bottom of the shaft, whence an inclined plane is excavated, having a dip of sixty degrees for 1000 yards, at which point the depth below the earth's surface is estimated at more than two thirds of a mile.

MC CONAUGHEY'S PATENT SEED PLANTER.

Placing corn in the hill by dropping it from the hand is a slow, laborious, and often a vexatious process, owing to high winds, which sometimes prevail at corn planting seasons. At such times the corn is blown about and the kernels lodge in improper places, as the seed of the sower in one of the parables, and possibly the mistake is not discovered until the crop appears above the soil, too late to remedy the error.

The simple device herewith illustrated prevents the seed from being dissipated by the wind, and insures its regular dropping in such quantities as the operator may choose. It is a tube of wood made by securing sides to a center piece and having attached a seed reservoir, A, the capacity of which is enlarged by the bag, B. The plunger, C, has recesses cut in it, which take from the reservoir, A, the proper number of kernels as the plunger is raised, and discharge them at D, where they are divided by the beveled center piece, E, and distributed. The operation is understood by the engraving. The apparatus is carried by the handle and the lower end of it placed in the hill, or at the intersection of the cross



furrows. A light pull on the handle discharges the seed as shown. The number of kernels, or the amount of seed, can be regulated by a simple device (not shown), which changes the action of the plunger, so that it can be adapted to different seeds.

The device was patented through the SCIENTIFIC AMERICAN Patent Agency, Dec. 4th, 1866, by Thomas B. McConaughey, of Newark, Del., to whom application should be made for territory in this country, excluding the States of Pennsylvania, Delaware, and Maryland.

MILK AND WATER.—It makes a great difference whether water is given to the cow or to the can. Dr. Dancel, in a communication to the French Academy of Sciences (quoted in the *Nation*), adduces proof that the yield of milk can be considerably increased by giving salt to incite cows to drink large quantities of water, and by moistening their food, with very little if any of the peculiar effect produced by the experiments of milkmen at a later stage of the operation. According to Dancel's observations, when a cow begins to give milk she drinks from eleven to as much as forty-five quarts of water per day, more than before. All cows that drink fifty quarts per day were found to be excellent milkers, yielding nineteen to twenty-three quarts per day. Less than twenty-seven quarts invariably marked a very poor milker. Of course the experiment of artificial stimulation by means of salt was intended only for scientific purposes. The importance of an abundant and convenient supply of pure water at all times, as much as the animal will take, is the practical deduction.

A NEW DELICACY.—The Paris epicures have found that snails possess a flavor superior to frogs. Consequently the trade in the latter has been for some time noticeably decreasing. The new favorites are sent in great numbers from the surrounding country to Paris, Burgundy and Champagne alone supplying 100,000 snails daily. Frenchmen eat horse meat, snails, fried Hottentot and other outlandish dishes with a relish. The French Zouave eats rats, cats and puppies. A French cook can make good soup out of dried sole leather.