

A SUBSTITUTE FOR THE BELL CORD.

In a recent number of the *Engineer*, almost two entire pages, with engravings, are devoted to the illustration and description of Mr. S. A. Varley's electrical contrivance for giving a signal from a car of a train to the engineer of the locomotive. A bell and magnet, with a peculiar arrangement of levers, are employed, together with a device for indicating the compartment of the car where the signal was given.

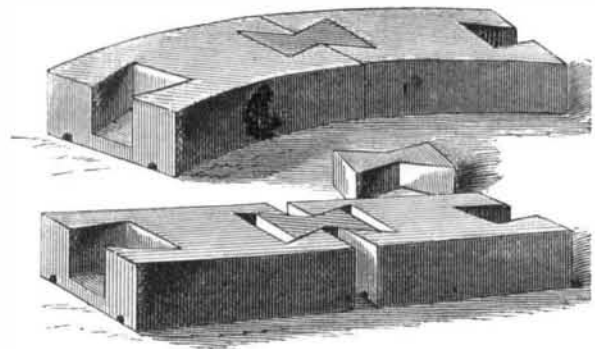
The reading of Mr. Varley's paper probably occupied an hour's time of the Society of Engineers.

There must be a defect either in the construction of British railway cars or in the moral status of British passengers; otherwise the use of the simple bell cord, so successfully employed on all American cars, would long ago have been introduced in England.

But it appears to be a fact, confirmed by actual experience on the British railways, that no sooner is a cord put on the cars than the passengers at once begin to amuse themselves by pulling it, sounding false alarms, bringing the train to a halt, and producing mischief in a variety of forms. The railway companies appear to be powerless to prevent this unauthorized pulling at the bell rope, and are obliged to discard its use altogether.

IMPROVEMENT IN BRICKS.

M. Emile Pavy has recently devised a connected brick, or rather, more strictly, a mode of combining bricks, for building purposes. The nature of the invention, as shown in our engraving, is readily understood. In the extremities of each brick are pressed or cut dovetail mortises which, when the former are placed end to end, come together. Into these portions a connecting piece of suitable form is slipped, which holds the bricks tightly together, mortar, at such points, being merely auxiliary.



The bricks may be made either square or curved and of any size. They are well adapted for constructing vaulting, each being formed to suit the shape of the arch and provided with a number of mortises proportionate to its size. The circular pieces may be used with advantage in the building of lighthouse or other towers. The *Chronique de l'Industrie*, to which we are indebted for our facts, says that the method has been used in France to considerable extent and with excellent results.

NEW SAFETY PUMP FOR SEA GOING STEAMERS.

Quite a valuable device, judging from what it is claimed to have done, has been invented for freeing sea going steamers from the excess of water taken in by leakage or through accidental injury. It is an attachment to the air pump, and consists of a pipe, of suitable dimensions, leading from the hold of the vessel to the top of the former and connected therewith with a valve. Water is taken up, through this conduit and on top of the air pump buckets, with every descent of the piston, and is discharged, with the condensed water and air, overboard through the usual channel.

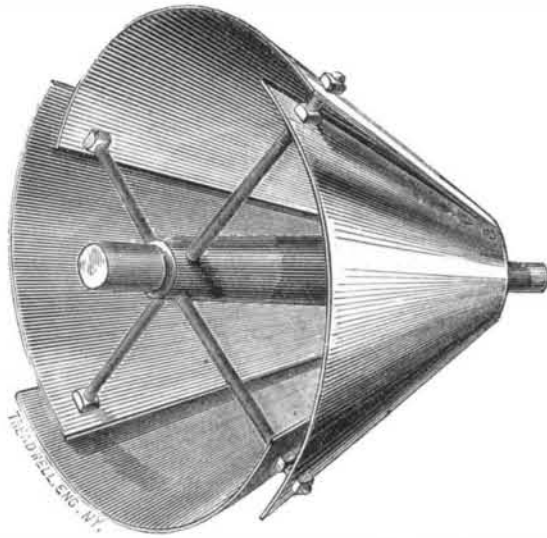
The inventor, Mr. Daniel Barnum, of No. 255 Halsey street, Brooklyn, N. Y., claims that the entire power of the air pump is thus utilized to clear the vessel, and this without interfering with the working of the engines. The arrangement has been placed in two vessels, in one of which, the *Saratoga*, after she had been pierced with quite a large aperture below the water line, it was, in connection with the other pumps, instrumental in keeping her afloat until repairs could be made. The ship in which the device was most recently placed is the *Niagara*, of the Old Dominion company's line, now lying at her wharf in this city in a damaged condition, from injuries received during a severe gale encountered during the passage from Bermuda to New York in February last. The storm, according to the statements of the officers, was so violent that the vessel was caused to leak and also to ship large quantities of water, so as to excite serious fears as to her safety. It is stated that, with the air pump attachment in operation together with the usual ship pumps, little difficulty was found in keeping the vessel free from water, so that her surviving the gale is largely ascribed to the efficacy of the former apparatus.

Mr. Barnum informs us that the device was patented as far back as 1858, but that he has met with much opposition to its introduction from the steamship owners and engineers, owing to their belief that it was impracticable. He considers the two cases above cited to fully prove its efficiency; and from the views expressed to us by officers of both vessels, there appears to be considerable foundation for his claims.

It is stated that alloys of nickel and German silver with from one to twenty grains of platinum are preserved from oxidation, and that aluminum bronze acquires a permanent brilliancy by the admixture of a small quantity of the precious metal.

IMPROVED PROPELLER.

Mr. E. C. Hubbard, of Green Bay, Wis., has recently invented the new propeller wheel illustrated herewith. The shaft is inclosed in a sleeve which terminates in a conical hub, to which are attached the curved and tapering blades shown. The sleeve is hollow, and, for the purpose of expelling the water more rapidly from the center of the wheel, is made tapering, or larger, at the end next the hub. The radial stays support the blades, and, by means of the nuts and screws, serve to adjust the size of the openings between them.

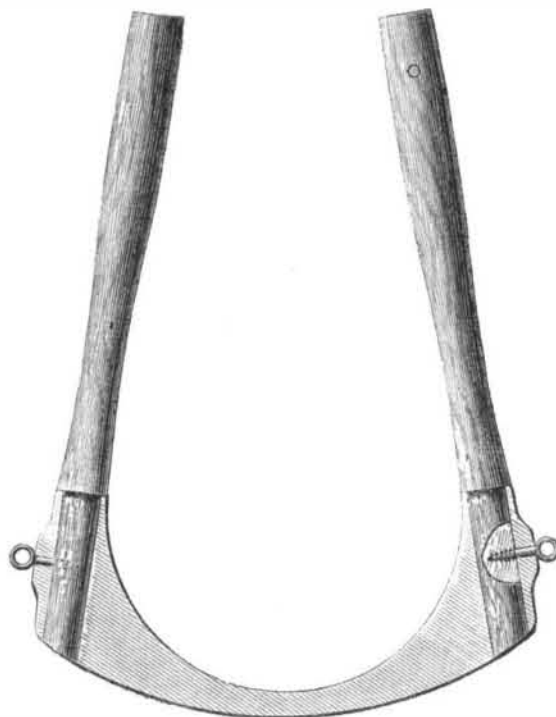


The inventor states that the device is not designed to disturb or displace the water, which, on the contrary, is drawn into or clasped by the wheel, and, when ejected, forms a powerful resisting force. In backing the motion is reversed, and a vacuum created inside the wheel. The inventor claims that his method is more powerful than the common screw and has greater speed. It is stated that it can retain a certain rapidity with 100 pounds of steam, while a screw would require 140 pounds. A new steam yacht, to which the invention has been applied, was recently tested at the Washington navy yard with very successful results, being propelled without the least jarring and with perfect smoothness. The dimensions of the propeller were 22 inches length by 30 inches diameter.

IMPROVED OX BOW.

This is a patented ox bow which, it is stated, does not require bending, and which may be made in parts of the country where timber suitable for the ordinary bow is scarce, without requiring much mechanical skill to make.

As shown in our illustration, the neck piece is made of metal with socket holes in its ends for supporting the straight pieces which are secured therein by means of screw bolts. The tenons may extend clear or only partly through the lower portion, which may be either solid or hollow, and of any form to suit the proper curve for the neck of the ox. Any kind of timber for the wooden, and any suitable material for the metallic portions may be employed. This is quite a



convenient and economical device, which will doubtless be appreciated by farmers generally. Patented May 24, 1870. For further particulars, address the inventor, Mr. A. L. D. Moore, of La Grange, Fayette county, Texas.

A Scientific American in Prussia.

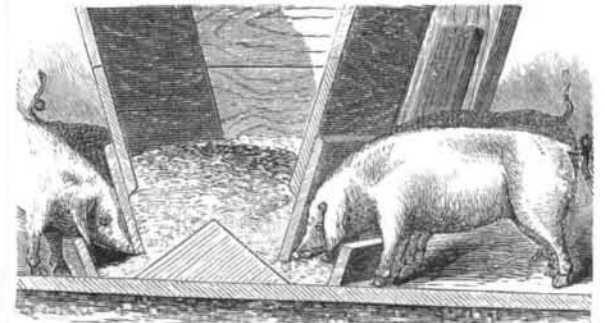
An accident occurred the other day, says the *Pall Mall Gazette*, upon the Hartz mountains, the circumstances of which, as reported, are highly honorable to a young American concerned. This gentleman, Mr. Tatham, formed one of a party of student excursionists from the Prussian School of Mines. It proved nearly dark when they reached the chasm and looked down it. Unhappily one of the party, a German named Kräwel, somehow lost his footing, and was

precipitated down the precipice, at the edge of which his companions were standing, into the depth below, where all sight of him was lost. His comrades dispersed in search of aid, but it proved too late to do anything effectual before night completely closed, and their dismay was increased greatly when they missed Mr. Tatham, who was supposed to have perished in a vain attempt to rescue Kräwel. At dawn the other students were on the spot with plenty of aid, and to their surprise saw the gleam of a fire, far below, in the chasm into which their comrade had fallen. It turned out that Mr. Tatham had managed to scramble down after the fallen man by the aid of bushes and rocks, and finding the object of his search, though terribly bruised, still alive and partly sensible, had tended him through the night, covering him with his own outer clothes, and keeping up a fire of sticks, both against the cold and as a signal for aid from above. Although the height down which Herr Kräwel fell or more properly rolled, is reported to be over 200 feet, he had broken no limb, and was making a good recovery at the last accounts, thanks to Mr. Tatham.

PATENT PIG FEEDER.

This device has for its object to enforce, by physical means, upon the comprehension of pigs, a certain amount of neatness during meals, which experience has shown cannot be impressed upon their understandings by any source of argument however cogently or logically stated, in other words, it prevents them putting their feet in the trough. It also aims, by regulating the supply of food, to check those habits of gluttony of which no hog is able to divest himself, and which, as in case of the gaunt frequenter of New York boarding houses, may be traced to the chronic and unappeasable state of internal famine in which he exists.

Corn or other food is thrown in the receptacle, the sides of



which are inclined inwards. Upon the bottom a dividing bar, having sloping sides, is placed, between the surface of which and the lower extremities of the receiver openings are left closed, by movable slides. The latter can be moved up and down to enlarge or diminish the size of the orifices, through which the food passes to the troughs. It will be observed that by no amount of contortion can the hog insinuate himself into the latter vessels, for the reason that, through the outwardly inclined sides of the reservoir, a space is left only big enough for him to insert his head. Food is fed out as it is wanted and is, besides, kept in a cleanly condition. For this useful improvement in its table furniture, the porcine family is indebted to Messrs. J. H. McElrath and L. M. Houghton, of Princeton, Ill., who patented the same August 20, 1872.

The Palinurus.

At a recent lecture in this city before the Nautical School, Dr. Thoms stated an interesting theory to account for the loss of the steamship *City of Washington*. The disaster, he held, was caused by a deviation of the ship's compass, occasioned by the electrical condition of the atmosphere consequent upon the appearance of the aurora borealis during the voyage. He exhibited an instrument, called the *palinurus*, employed to detect and note the variations of a ship's compass during a voyage. The *Lapland*, which sailed from England only a day after the *City of Washington*, carried such an instrument, which showed that, during the appearance of the aurora borealis, her compass deviated $1\frac{1}{2}^\circ$. This deviation, occurring as it must have done on the *City of Washington* at the beginning of her voyage, would cause her to diverge 20 miles from her course in every hundred, and she was only 150 miles out of her reckoning when wrecked.

Some of the witnesses examined during the recent government inquiry testified that they believed that the loss of the vessel was due to deviation of the compasses, caused by the iron and steel of which her cargo was chiefly composed.

The New Hotels of Chicago.

The splendor and large extent of the new hotels in Chicago may be judged of from the following: The *Pacific Hotel* is 325 feet by 186; the *Wilton* carpet, of American manufacture, which covers the halls, is more than a mile long; there are twenty miles of wire in the house, 500 bedrooms, equal in size and quality from the first to the seventh floor, and it takes 218 servants to attend to the guests. There are six acres of carpeting. The whole cost of the establishment was \$1,200,000, and the furniture cost, besides, \$400,000.

The new hotel of Mr. Potter Palmer is almost ready for occupancy. Its cost will be \$2,000,000, and it is claimed to be fireproof. All the floors, beams and rafters are of iron; patent tile partitions are used, and the marble decorations surpass anything of the kind in the world.

CHANGEABLE PLOW POINTS.—In regard to the suggestion of L. L. B., on page 383 of our volume XXVIII, P. F. B. writes to say that the idea has been carried out by T. Edmunds, who has patented the invention.