THE FIRST OVERHEAD-PROPELLED STREET RAILWAY.

This plan for street railway car did not work by electricity, but by cable, which was stretched on poles, and a grip device, that answered in place of the trolley, was used. We give illustrations. It is the patent of Foster & Brown, granted January 18, 1859. On the roof of the car was a bar, F, on which a sliding grip standard was arranged, with springs on each side of its base. The grip acted like a pair of nippers, and when the conductor of the car pulled a string the nippers opened, and were again closed upon the cable by the pull of another string, which worked a locking button, *f*, as shown in Fig. 3. The cable was intended to be kept in constant motion, and the car could thus be propelled and stopped at will.

This device carries a dim pictorial suggestion of the modern electric street railway, in that it takes power from a cable suspended above the car, but beyond this there is no analogy. It has the distinction, we believe, of being the first overhead-propelled street car. The Brown who here figures as a patentee was the Rev. Harvey Brown, formerly a well known citizen of Harlem, New York City, where he died, several years ago. He was a man of much ingenuity, the author of various useful inventions.

Fig. 3.

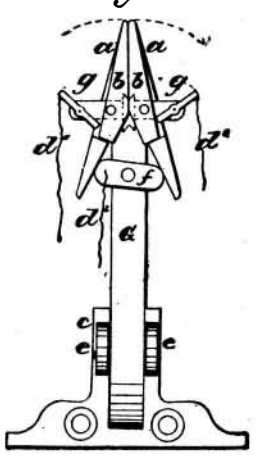


Fig 2.

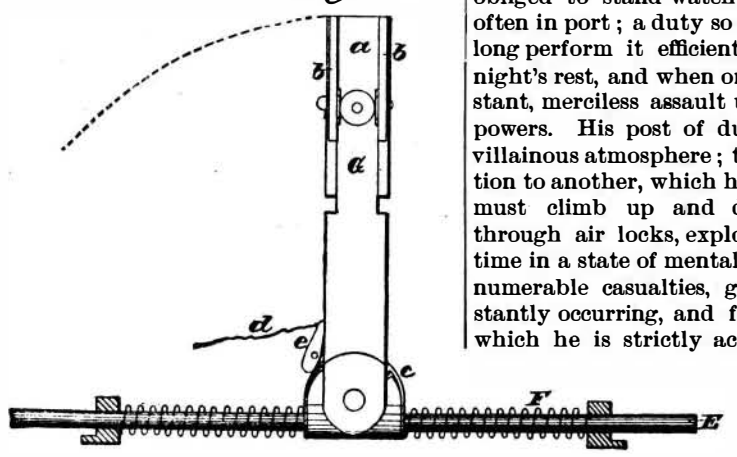
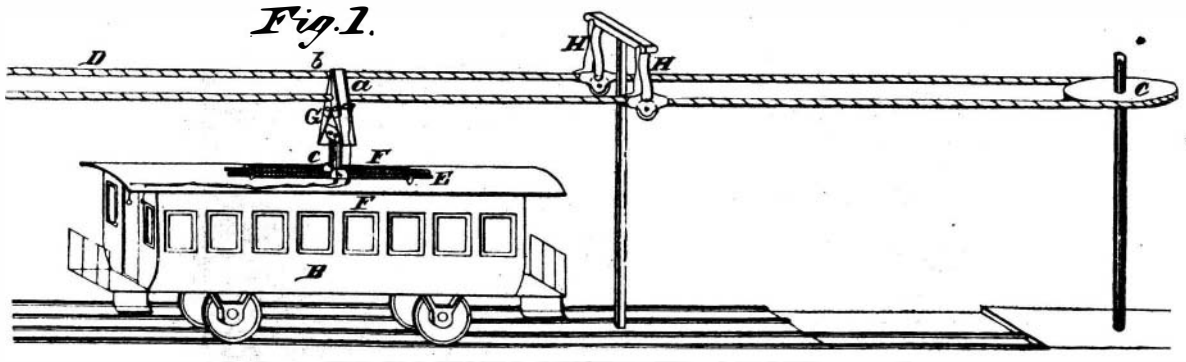


Fig. 1.



THE FIRST OVERHEAD-PROPELLED STREET RAILWAY.

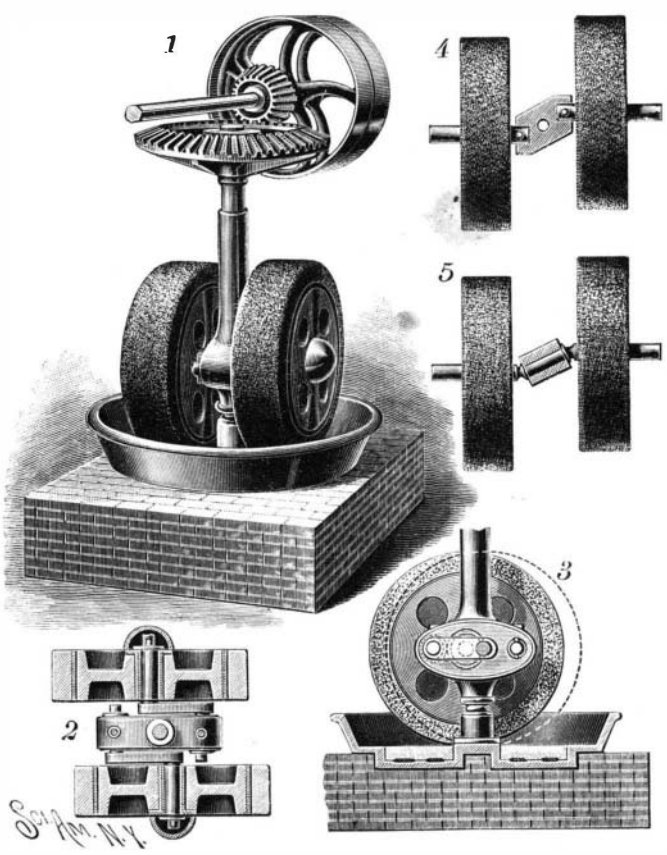
Cinnamon as an Antiseptic.

"No living germ of disease can resist the antiseptic power of essence of cinnamon for more than a few hours," is the conclusion announced by M. Chamberland as the result of prolonged research and experiment in M. Pasteur's laboratory. It is said to destroy microbes as effectively, if not as rapidly, as corrosive sublimate. Even the scent of it is fatal to microbes, and M. Chamberland says a decoction of cinnamon should be taken freely by persons living in places affected by typhoid or cholera.

IMPROVED MEANS OF RUNNING MILLSTONES.

Mr. Henry Mantey, Master Mechanic of the Ferrocarril Mexicano, residing at Orizava, Mexico, has recently patented some important improvements on Chilean or vertical mills, which counteract the tendency of the millstones to press outward upon their bearings under the influence of the centrifugal force, and thereby greatly decrease the wear of the axles and their bearings. The axles upon which the millstones are mounted are not arranged radially, as is customary, but are inclined forward with relation to the radius of revolution, so that the resistance of the working faces of the millstones (which is always in a direction at right angles to the radius of revolution) will give them an inward tendency on their axles and counteract their outward tendency from the centrifugal force. The improvements are represented in the accompanying cuts, Fig. 1 being a view in perspective, Fig. 2 showing a top section over the millstone axles, and Fig. 3 a vertical section. A cross beam is mounted at its center on the vertical operating shaft, and at opposite ends of the beam are journal boxes in which the inner ends of crank axles are journaled and held, the millstones being secured on the outer ends of the crank axles. The lower end of the shaft is journaled upon a central step of the foundation, in an annular depression of which, surrounded by the basin, is the bedstone on which the millstones travel as the shaft is revolved by a beveled cog gear keyed to the main power shaft. The millstones rise and fall automatically to suit the varying conditions of the ore, grain, or other substance being ground, but are not subjected to the usual centrifugal strain, because the axle ends are forwardly inclined with reference to the radius of revolution, as shown by the dotted lines in Fig. 3. In Figs. 4 and 5 are shown modifications of the improvement, the axles of the millstones being joined together in each case by a casting secured at its center to the operating shaft.

As the centrifugal force varies with the rate of speed at which the mill is run, the adjustment of the inclination of the axles to the tangent of the circle of revolution, to correspond with the rate of speed, becomes a matter of considerable importance, and the providing of means to accomplish this result affords the subject of another patent issued to the same inventor. Several different forms of adjustable crank axles and journal boxes are provided for, including means for applying the improvements to a mill employing four millstones, in all of which the position of the axles can be adjusted to such nicety that they will exactly counteract the centrifugal force, at whatever speed it is desired to run the mill.



MANTEY'S EDGE RUNNER OR VERTICAL MILLSTONE.

More Engineers Needed in the Navy.

To provide for the proper supervision and care of the immense amount of steam machinery we have now building or already afloat, provision must be made by Congress for a sufficient increase in the membership of the Engineer Corps to admit of the detailing of enough officers to all ships to stand proper watches in the engine department, and at the same time not neglect the very important shore duties. Objection has been made to the detailing of this sufficient number of engineers to cruising ships on the ground that there is not room for them on the ships. I hold that quarters should be provided for the people who are indispensable in the maintenance of the ship, and that it would be better to make reductions elsewhere than to allow a million dollars' worth of machinery and the work of 100 to 150 men go uncared for, even though the cry be raised that the ship has too many engineers when a sufficient number is detailed for necessary duty.

For any cruising vessel of 5,000 horse power and upward there should not be less than one chief engineer and four assistants, while in some of the new vessels of great power there should be a sufficient number of assistants to have two officers on duty at a time.

On our most powerful ships—those of from 5,000 to 10,000 horse power—the usual complement now is one chief engineer and three assistants, the latter being obliged to stand watch in three watches at sea, and often in port; a duty so exhausting that no officer can long perform it efficiently, for he never has a whole night's rest, and when on duty has to withstand a constant, merciless assault upon his physical and mental powers. His post of duty is one of intense heat and villainous atmosphere; to get from one part of his station to another, which he must do very frequently, he must climb up and down narrow ladders, crawl through air locks, explore coal bunkers, etc., all the time in a state of mental anxiety on account of the innumerable casualties, great and small, that are constantly occurring, and for the prompt remedying of which he is strictly accountable; in one watertight compartment some boiler tubes are leaking and the men are in a panic; in another, a hundred feet or more away, a feed pump is refusing to work or a thrust bearing is hot, and while hurrying from one scene of danger to another the engineer is liable to receive tidings of trouble in some remote coal pocket, or even be summoned to appear on deck, where he must calmly answer questions regarding the amount of smoke escaping from the smoke pipes or the necessity for hoisting ashes, wholly unmindful of the disasters which he knows are impending below. So it goes, watch after watch and day after day, until in the course of a week or two the engineer is a nervous wreck, fit for nothing but the hospital; and all because the lack of numbers imposes upon him the work of at least two men.

In ships of 3,000 or 4,000 horse power, like the Bennington or Boston, for example, the chief engineer has but two assistants, who are assigned to what is termed "supervisory watch" at sea; in theory the officer on duty need not remain constantly at his post, but in practice he cannot sit complacently in his quarters and allow his responsibilities to take care of themselves; so that really the duty imposed upon the two officers amounts to standing watch and watch, six hours on duty and six hours off, or twelve hours daily, day and night for days and even weeks at a time. Such a condition reduces those who have to bear it to the mere animal existence of a beast of burden, and I wonder at the constancy of intelligent men enduring it with nothing to sustain them beyond the hope that a change for the better cannot be far off.—*1892 Report of Chief of Bureau of Steam Engineering.*

Warm Feeling Produced by Carbonic Acid.

It has often been observed that the natural man does not like a number of things which are demonstrably good for him, while exhibiting a deplorable fondness for even more things which are notoriously bad for him in many respects. Among these may be named ventilation, the desirability of which was discovered by sanitarians, but which uninstructed mankind persists in neglecting for the greater attraction of coziness. Whether this positive liking of unscientific man for a stuffy atmosphere has any justification, is a question which sanitarians would probably decline to discuss, but it suggests itself in connection with certain experiments of Dr. Rene du Bois Reymond, recently described to the members of the Berlin Physiological Society. This communication went to show that a sensation of warmth ensues on immersing the skin, say of the hand, in a vessel containing carbonic acid gas. Some other gases produce the same effect, but they are gases not usually found in air. The warming sensation produced by carbonic acid gas is compared with that of air at a temperature of 68° Fah. This phenomenon does not yet admit of a physical explanation, but is regarded rather as resulting from a chemical stimulation of the sensory nerves for heat perception. There may not be any real connection between the experimental truth determined by Dr. du Bois Reymond and the dislike of fresh air in their dwellings shown by people of low culture, but the coincidence is at least an odd and a striking one.—*Jour. of Gas Lighting.*

A STEEL-LIKE grass from the volcanic slopes of Oran, Algeria, is said to be so elastic that it can be used instead of springs in the manufacture of furniture.