

Stray Railroad Cars and How they are Recovered.

The way in which railroad officials keep track of their freight cars, which are run thousands of miles over other railroad lines, has, no doubt, excited the wonder of many, and were it not for the constant vigilance of the great railroad companies in keeping watch of their freight cars, the loss of rolling stock and damage resulting from delays and mistakes would prove a source of serious financial loss to all concerned.

Nearly all the great roads employ a corps of what are known as "lost car searchers" or "tracers." Every freight car is numbered and used for a certain purpose, and whether it be a "gondola" or flat open car, or a box car, it can be traced from one end of the country to the other. The "searchers" will follow a clew to San Francisco if necessary, and see that the car is returned to its proper station. The "car searcher" has been a most active agent of the railroads for many years past, but, as in every other business, improved methods are constantly introduced.

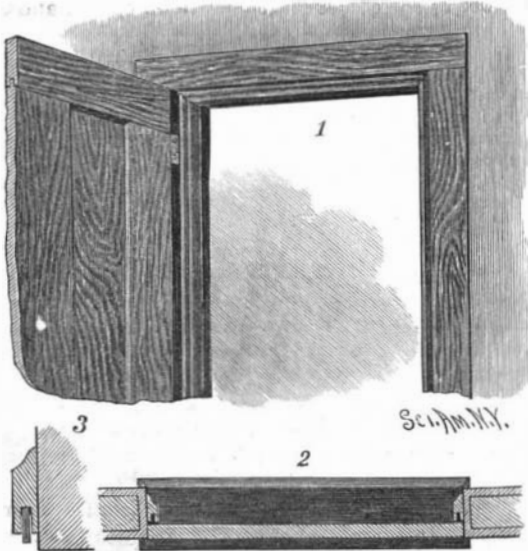
At last our great trunk line road, according to the *Evening Telegram*, has dispensed with the car searcher in favor of a large force of responsible clerks, with the telegraph and telephone as auxiliaries. So systematically is their work done that, if the conductor of a freight train were to make the slightest error in the numbers of the cars in his train or a description of them, it would be detected and the conductor called on to rectify it. If a car is reported missing in any part of the country, one of these clerks, by referring to his books, can tell at what point the particular car should be at the time and when it should be returned.

Artesian Well Boring in Nevada.

We learn from the *Mining Industry*, of Denver, that artesian well boring is now a sort of mania in parts of Nevada, and some of the borings are proving successful. A fine flowing well was struck a few days ago in Douglas County, Carson Valley, at a depth of only 310 feet, and without encountering rock of any kind. Improved boring machinery has been ordered from the East, and we may expect to see the experience gained in the Comstock mines, in "feeling ahead" for water, brought into play. By tunneling into the mountain that forms the rim of the basin of Lake Tahoe, a very large supply of water might be obtained, and as the diamond drill will easily bore ahead 1,000 feet or more, it would be an excellent tool for use in tunneling for water. In case of striking a strong flow, several holes could be sent into the source, thus saving the cost of driving forward a large tunnel. Many great bodies of water have been thus tapped and drawn off in the deep workings of the Comstock. In the Union Consolidated mine, cocks were fitted into the diamond drill holes and the water drawn off as it could be taken by the pumps. In running the Sutro tunnel the diamond drill was sent ahead to tap shafts in which water had accumulated to the depth of several hundred feet. Good hits were nearly always made with the drill, though it was sent ahead a great distance.

AN IMPROVED DOOR OR WINDOW STOP.

A stop to be used in the construction of door and window frames as an abutment for the door or window, while serving also to cover the crack between the door or window and the jambs, is illustrated herewith, and has been patented by Mr. Noah Van Allen, of No. 149 West Monroe Street, Chicago, Ill. The stop has a

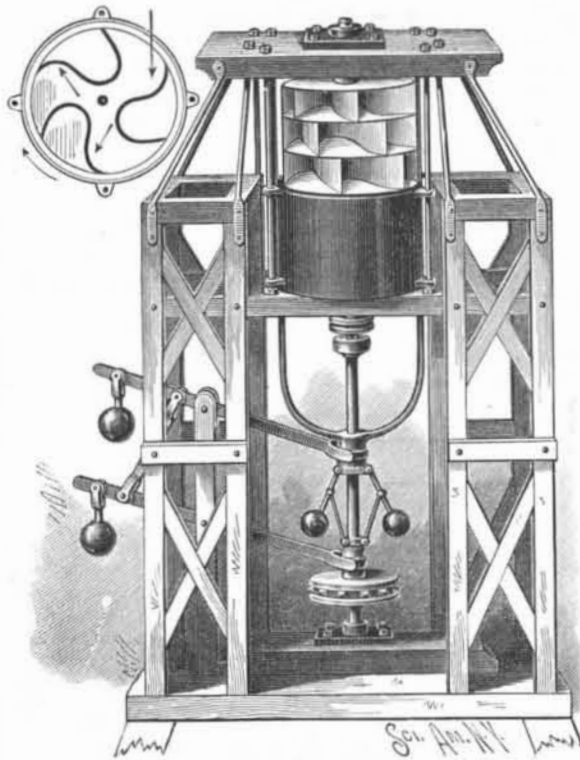


VAN ALLEN'S DOOR OR WINDOW STOP.

longitudinal groove, in which is arranged a packing strip of elastic material, the strip being of less thickness than the groove and secured in the groove at its inner edge only, so that it can be retracted to permit the door to have a full bearing on the stop. Fig. 3 shows an enlarged cross section of the jamb and attached stop, Fig. 2 being a sectional plan view of a portal provided with the stops when the door is closed. With this construction a weather-tight joint is made, obviating the necessity of using weather strips.

AN IMPROVED WINDMILL.

A windmill designed to regulate automatically the speed of the main driving shaft, and which will always act, from whatever direction the wind blows, without the shifting of vanes and other devices, has been patented by Mr. Marcus J. S. Soli, and is illustrated herewith. The windwheel consists of one or more turbines, one above the other, secured near the upper end of the vertical driving shaft, each wheel having top and bottom disks, between which are held curved blades form-



SOLI'S WINDMILL.

ing orifices for the entrance and exit of the wind, and channels through the wheel, as shown in the sectional view, the turbines being arranged so that the outer edges of each blade break joints, that the wind may act from whatever direction it comes, and on leaving as well as on entering the wheel, as indicated by the arrows. The windwheel is designed to be wholly or partly covered up by a casing, to the lower end of which is secured a U-shaped downwardly extending rod, having a collar in its middle fitting loosely around the vertical driving shaft. The forked ends of a weighted lever, fulcrumed on the main frame, extend beneath the collar, a link connecting this lever with a lower similar one, the forks of which engage a collar on the lower end of a governor secured to the main shaft. When the shaft runs beyond the normal speed the governor balls fly outward, raising the collar on the lower end of the governor, when the lower lever operates to pull down the outer end of the upper lever, thereby raising the casing to fully or partially inclose the windwheel, according to the movement of the governor balls.

For further information relative to this invention address Mr. B. H. Lien or Mr. M. J. S. Soli, Brookings, Dakota.

Habits of the Blacksnake.

Blacksnakes always feed on live prey, and possess a power over their prey that is truly wonderful, and I think that birds, old and young, are their main dependence for food—old birds are captured by them with ease. I captured a snake nearly 5 feet long that had a full-fledged song sparrow in its body about 6 inches from its head. They feed on any kind of live prey within their capacity, and have been caught with a young rabbit in their body. They also are successful hunters of birds' nests for the young, and will climb trees in their search. I was once near an orchard when I heard robins making a great outcry, evidently disturbed by something. I went to see the cause, and discovered a large blacksnake at their nest in an apple tree about 15 feet from the ground. The tree was about 1 foot in diameter and 7 or 8 feet up to the branches. The branch on which the nest was, stood off at an angle of about forty-five degrees. When the snake saw me, he glided down on the top side of the branch, and when he reached the trunk he slid off and dropped to the ground. In his mouth was a young bird partly swallowed, which proved such a clog to him that he could not run rapidly in the grass, and I captured him.

Many stories are told of their chasing people. I have seen persons who claim to have been chased by them, and sometimes it was by a racer, a blacksnake with a white ring around its neck. I never saw a snake of that description, and I know of no authority claiming the existence of such a snake. A blacksnake five or six feet long can outrun a man. Their speed I have repeatedly witnessed, when they have escaped from me. Now, if they chase people, why do they not catch them, and if they should catch a per-

son, what could they do with them? Certainly they could not use them as food. It is singular that so many persons have been chased by them, and yet no instance has been reported where they have been caught.

The racer, described as a blacksnake with a white ring around its neck, exists only in the imagination of frightened people. It has no place in natural history, and yet I have known several persons who claim to have been chased by them, and were just as sure of the white ring as they were of being chased.—*Forest and Stream*.

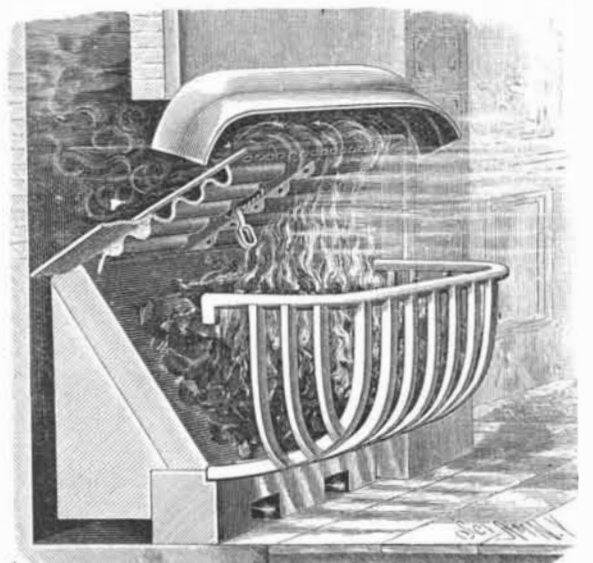
The Steel Ram of the War Ship San Francisco.

The ram for the San Francisco was cast at the Pacific Rolling Mills, San Francisco, last month. A pit shaped like the letter L was dug in the floor of the foundry. It was eight feet deep, twenty feet long in one direction and twenty-five in the other. In this pit was placed the mould. To this pit there was a tramway upon which the ladle, being mounted on wheels, traveled. When the pit was reached, the metal was allowed to flow into the mould in a stream six inches in diameter. When the mould was filled, there was still considerable of the liquid steel left in the ladle. The actual operation of casting the ram occupied but twenty seconds. Whether the results are satisfactory can only be told after the metal has cooled, and that will take several days. It took two months to get ready to perform this twenty-second operation. The operation of casting such a huge amount of metal is very interesting to those who have no knowledge of the process. To insure the complete filling of the mould there were placed two apertures, 18x24 inches in diameter and 4 feet long, called "rising heads," left in the top of the mould, into which the metal rises, and as the metal cools this allows for any shrinkage in the body of the metal. The weight of these two rising heads will approximate 9,500 pounds, the weight of the ram being 13,000 pounds—2,000 pounds heavier than that of the Charleston.

The general shape of the ram is that of a crescent, with one point a little shorter and more curved than the other. The shorter point will extend upward at the bow, and the lower point will run aft under the ship. The curve forms the ram. When in position it will be 20 feet 8 inches from its most forward point to the end of the longer point, and will have a height of 13 feet 10 inches. Where the curve is the thickest—that is, where the vessel would strike when ramming—there is a thickness of 2 feet 9 inches of solid steel.—*Pacific Contractor*.

AN IMPROVED FIREPLACE.

A fireplace designed to facilitate the ready regulation of the amount of draught necessary for free combustion, and with which the heat generated will be retained and directed into the apartment to be heated, is illustrated herewith, and has been patented by Mr. Robert B. Berrie, of Lexington, Mo. A corrugated plate with end flanges is set into the wall, upwardly inclined above the firepot of the grate, the plate having a flat middle part, through a slot in which passes a handle secured to a regulating plate sliding on the rear side of the corrugated plate, the slot having notches adapted to be engaged by the handle to hold the regulating plate at the desired height. The edges of the regulating plate have apertures, as have also the inner ends of the corruga-



BERRIE'S FIREPLACE

tions, to permit the free radiation of heat and prevent the corrugated plate from becoming too hot. Above the grate is held a hood, the moving forward or backward of the regulating plate decreasing or increasing the draught opening formed by the front end of the corrugated plate and the front end of the hood. Under the grate extend one or more channels leading to the chimney, indicated by the arrows, the inner openings of these channels being closed or opened by the lower end of the regulating plate.