

IMPROVED ELEVATOR.

The frequency of accidents to elevators has suggested a practical field for invention, to which some of our inventors have turned their attention. By some safety is sought in pawls and ratchets in a multiplicity of ropes, and in the hoisting machinery itself; but the inventor of the device which we illustrate secures safety by automatically opening and closing the hatches as the elevator approaches and recedes from them. This plan not only secures the elevator car from dangerous falls, but it also prevents persons from falling down the hatchway, and in case of fire prevents its spread through the hatchway.

The mechanism by which this very desirable end is accomplished is both novel and ingenious. The hatchway is closed at each floor by two doors, A B, which are connected by links, *a*, with a slide *b*, moving in guides at the side of the hatchway, so that when one door is moved in one direction the other will be correspondingly moved in the opposite direction. The doors A B, are each provided with two segmental racks, C D, which are engaged alternately by racks on the vertical rods, E F. These rods extend from the top to the bottom of the hatchway, and are provided with as many short sections of rack as there are segmental racks attached to the doors.

On the driving shaft of the elevator there is a loose spur wheel, G, engaging a rack on the lower end of each of the rods, E F, so that when one of the rods moves upward the other moves downward. Upon the rod, F, in addition to the rack already mentioned, there is another rack which is engaged by a wheel having cogs in a segment of its periphery, H, secured to the driving shaft. The car is hoisted in the usual way, and as the driving shaft revolves an intermittent vertical movement is imparted to the rack on the lower end of the rod, F, by engagement with the mutilated wheel, H. The rod, E, by virtue of its connection with the rod, F, through the spur wheel, G, is also moved vertically, but in the opposite direction.

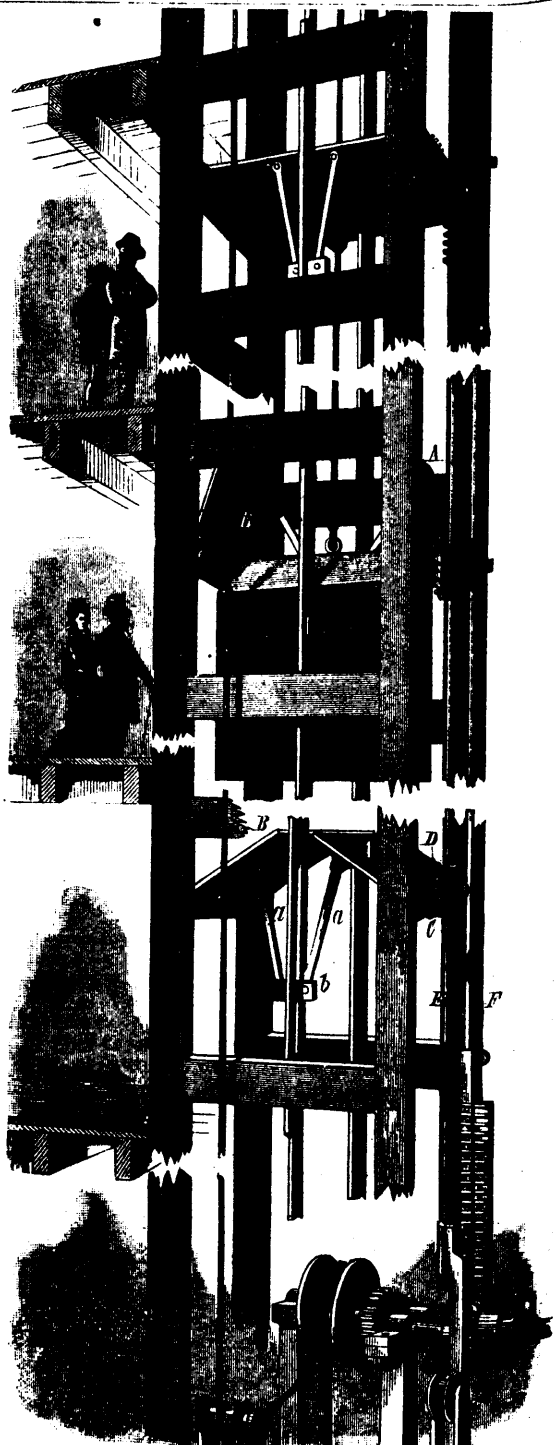
When the car is ascending the rod, F, with its racks, is moved downwards, and its movements are timed relatively with the movement of the car, so that just before the car reaches a pair of doors the rack segment, D, on the door is engaged by one of the racks on the descending rod, F, and the doors are opened, at the same time one of the racks on the rod, E, engages one of the rack segments C, on the door below, closing the doors immediately after the passage of the elevator through the floor to which the doors belong. When the car descends the reverse of what has just been described occurs.

This invention was recently patented by Mr. James W. Evans, care Geo. F. Betts, Equitable Building, 120 Broadway, New York City, who may be addressed for further information.

TUBE-WELLS FOR LARGE SUPPLIES OF WATER.

For the last eight or nine years, the leading breweries at Burton-on-Trent have obtained the bulk of their water-supplies from a number of tube-wells connected with one pump. Messrs. Allsopp & Co. pump 600,000 gallons daily from 30 3-inch wells, and Messrs. Bass & Co. 500,000 gallons from 25 tubes. Thus, in one town, two breweries are obtaining sufficient water for a town of 40,000 inhabitants. Although some of these Burton wells are within a stone's throw from the Trent, the quality, level and temperature of the water differ from those of the river-water. The town of Carmarthen, in Wales, is supplied by 10 2-inch tube-wells. In sandy soils, strainers or filters are used, which prevent sand coming into the tubes. A tube-well was sunk in very fine sand at Chiselhurst, by pumping up six barrow-loads of sand and replacing it with gravel. One advantage of the gravel filter is its imperishability, and if made sufficiently large, the velocity of the water is not sufficient to bring the grains of sand within the area acted upon by the pump. In rocks and other hard strata, the method of sinking tube-wells is similar to that employed in making artesian borings; but the mode of pumping and development of supply are entirely different from the tube-well system. Bored tube-wells can be made through any stratum and to any depth that an ordinary artesian boring can reach. The Lower Grounds, Birmingham, with their ornamental waters, fountains, and extensive gardens, derive their entire water-supply from a single 5-inch well sunk about two hundred feet deep. By means of this well, an annual saving of £300 for water-rate is effected. Two tube-wells at West Thurrock yield a daily supply of 220,000 gallons from the chalk.

—ADDITIONAL freight sheds have had to be constructed on the wharves at Montreal to meet the increasing trade at that port.



EVAN'S IMPROVEMENT IN ELEVATORS.

STARVING OUT CANCERS.—At a late meeting of the Leeds (England) Medical and Chirurgical Society, J. W. Teale read a case of quiescent scirrhus. The patient was an unmarried lady of 35. A cancer formed in her breast, causing retraction and ultimately loss of the nipple; it ulcerated; some axillary glands enlarged, and the patient seemed about to die. But in consequence, as it seemed, of the small quantity of food taken by the patient, the cancer was "starved." It atrophied slowly; and now, nine years after its first appearance, there was nothing but a hard cicatrix left in the breast and axilla. Cases more or less similar were related in the discussion which followed.—*Medical and Surgical Reporter.*