New Inventions.

Improvement in Dams.

Mr. J. Bevan, C. E., the inventor of the "Patent Arch Girder," illustrated on page 324 of our last volume, has taken measures to secure a patent for a most valuable improvement in the construction of portable dams, which cannot fail to be a great acquisition to the engineering science of our country. For stopping crevasses, turning aside streams for the excavation of shoals, &c., we believe the plan of Mr. Bevan to be the best that has yet been brought forward. The principle of it consists in the manner of constructing the buttresses, whereby their inner ends are strapped to form grooves for the reception and guide to the pointed piles, and by so constructing the staunching curtain with horizontal planks, and apron of canvas, that it can be erected not only with great expedition, but it also prevents the water from working out any part, as all is closely faced together, however uneven the bed of the river or stream may be. The buttresses are so made that they can be erected in sections, with spiked vertical bars, to hold them fast, so that the planking can be removed easily, to allow as much or as little water to escape at any one part, as circumstances may require. The greater the pressure of water on the staunching curtain, it has a tendency to force down the piles, and thus it requires but little labor to sink them, as a slight hold on the river bottom is quite sufficient to render them firm and permanent. This plan, we believe, would have been quite successful in stopping the crevasse at New Orleans, last year.

Improved Locomotive Boiler.

Mr. Chas. F. Mann, of the city of Troy, N. Y., has invented and taken measures to secure a patent for an improvement in locomotive boilers, which is worthy of attention. The grate is placed above the horizontal part of the boiler, which consists, at the front end, of a horizontal cylinder, being divided, as it were, into two parts, with a space between, through which the ashes passes down between the grate bars, thus dispensing with the ash pan, and the boiler is brought forward under the whole length of the grate, thus adding about three feet to the real length of the boiler, without adding to its length, so far as it respects the space occupied on the frame. The boiler, by this arrangement, is also brought down very low, so as to bring the axle of the driving wheels above it. Horizontal tubes are as usual run through the entire length, and surrounding the smoke-pipe is a chamber to receive the water from the tank, so as to meet the heat as it escapes in the form of a hot current of gas, and gradually to approach the most intense heat at the fire-box, above which it ascends to the steam chamber; thus keeping up a continual and judicious circulation.

Electro Magnetic Passenger Index.

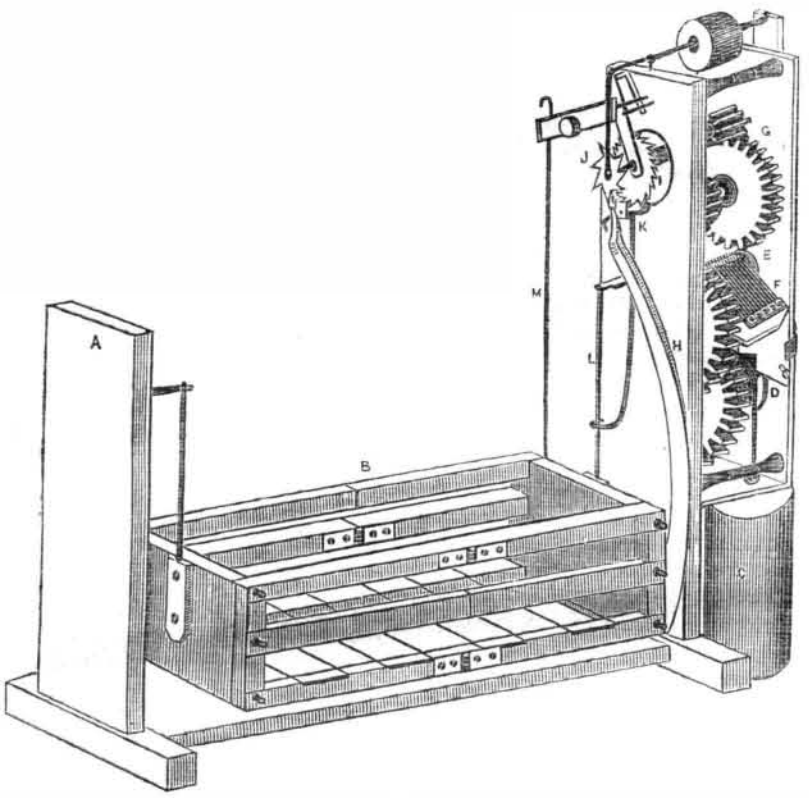
The London Times describes a new invention of a Mr. C. Pownal, for telling the number of persons who go in and out of omnibuses and stage coaches. Underneath the omnibus, in a small box, about nine inches square, secured with a Bramah lock, there is a small battery; the pressure of the passenger's foot upon the step moves a spring, and, bringing two pieces of metal into contact, completes a metallic circuit in connexion with the battery, and the mysterious current is made to flow through an electro-magnet, which attracts to it a piece of steel and drawing it up, a ratchet-wheel is caused to move one tooth forward, and the index-hand or finger of a dial to be pushed onward one degree. As each degree upon this dial is numbered, the hand advancing from number to number indicates how many persons have passed over the step at the omnibus-door since the dial was set. This brief statement will give the general idea of the invention. Considerable pains appear to have been bestowed upon the details.

[By this description, it will be observed by those acquainted with the telegraph, that the step is employed for the same purpose as the *key* of the telegraph. It could not very well be applied to the omnibuses of this city.

THE SELF-SWINGING MUSICAL CRADLE.

This cradle is the invention of Mr. L. F. Whitaker, of Raleigh, N. C., who has taken measures to secure a patent for the same. The cradle, with this improvement, is like the pendulum of a clock: it answers all the purposes of one, in combination with a spring and gearing, to keep the cradle swinging for a number of hours, and to play some tunes at the same time, like those in a musical box.

A is a post, and there is another on the opposite side; B is the cradle, suspended by a swinging rod to the post, A, and by another, L, to the opposite post. Between the latter post and another, G, there is arrayed gearing in connection with a coiled barrel spring in the inside of the cylinder, C, which keeps the cradle swinging by an escapement, of pallet and of ratchet wheels. K is the pallet of a double click, it is attached by a vibrating pin to the arm, H, which is stationary. The pallet arm is hooked to the swinging rod, L, of the cradle, so that when the cradle is swung the clicks will be set free and take into the ratchet wheel, I, giving motion to the pinion and gearing, G, which are all connected to the lower toothed wheel, over the drum of which passes the cord, D, which is connected with the barrel spring inside of the cylinder, C. The tension, therefore, of the barrel spring, is to drive the wheels, and the cradle, acting as

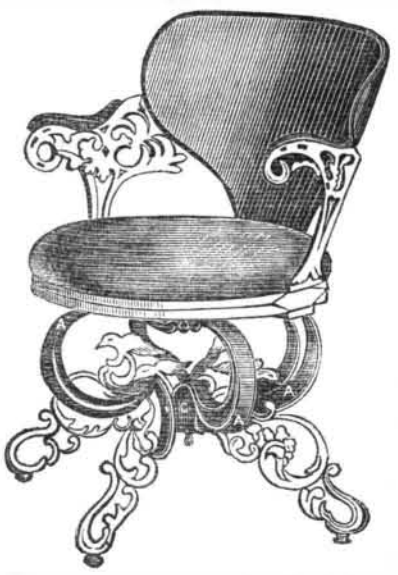


a pendulum, moves the ratchet wheels, so as to regulate the uncoiling of the spring. A weight, like that of some clocks, will answer the same purpose. There are two ratchet wheels, I and J. The one, I, has fewer teeth, and is for short oscillations of the pendulum; and there is a roller, with projections on its surface like those of a hand-organ, to act upon the metal keys, F, to play one or more favorite lullabys. The ratchet wheel, J, is for long gentle swings, and is very convenient to be set at night, when the cradle will keep moving without a hand touching it. The axle of the ratchet wheel can be moved in and out, so as to set free and take into the pallet, K, and allow clicks to take into the wheel, J. This is done by the rod, M, acting upon a top arm above. There may be two or three ways employed to do this. The whole of the gearing, although engraved upon a large scale, may be contained in a box not over six inches square, and the cradle can easily have rockers on it, and in that way, may be transformed in two minutes from a swinging to a portable rocking one, for the swinging rods can be hooked to the sides of the cradle, and therefore they can be unfastened in a second of time. This is a very neat and useful invention, and should meet with general favor.

More information may be obtained by letter addressed to the inventor at the above mentioned place, or at Fayetteville, N. C.

Warren's Steel Spring Chairs.

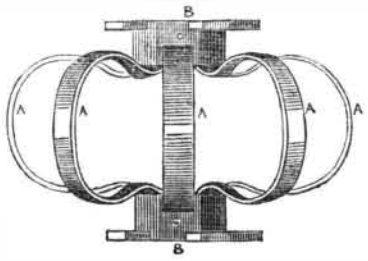
FIG. 1.



The accompanying engravings illustrate one of the chairs to which we have referred on our editorial column. Figure 1 is a perspective view, and figure 2 is a front elevation of the springs. The back and seat are secured on a collar, C, which can move round on an axis, of which B is the plate. To this axis, under the collar, C, the springs are attached. A A are the springs; they are made of flat hoop steel, and are bowed from the base, curving around and concentrating in the collar, C, under the top plate, B. The chair is all metal, except the cushioning. It has an easy elasticity; the seat revolves, and it is altogether the easiest that has ever been used in our office. No lengthened description is required; its construction will be apparent to all. Its durability is self-evident.

Mr. Warren is now applying his springs to the seats of railroad cars, and also to the bo-

FIG. 2.



dies of the cars. It may well be said that the principle of this invention, as relating to the various vehicles to which it can be applied, is as elastic as the well-tempered steel spring itself. These chairs are for sale at 240 Broadway, this city.

Decisions of the Patent Office.

When reading the review of Examiner Fitzgerald's Report, in last week's Scientific American, I was forcibly and painfully struck with the apparent recklessness of the Patent Office, in the examinations of applicants' claims, and the decisions made thereon. The man who could make 730 examinations in one year, working six hours per day, could not but be expected to "cut off 460 heads,"—a familiar expression, it would seem, in the Patent Office. The office has power to reject and grant patents. An appeal from its decision is attended with a great deal of expense. No poor inventor can appeal—the means to do so are not at his command. The Examiners know this, and this is the reason why they steam through their examinations so recklessly, and employ the guillotine so freely. Under Mr. Fitzgerald the cut and thrust system of Hungarian exercise, was always practised, and this is the reason why his Report exhibits such skill of fence in warding off the claims of applicants. His Report for 1848 exhibits no less a number than 546 "heads cut off," and 356 patents granted. Six months of that year his labors were joined with Mr. Renwick's, and this may be a reason why not one half the number of applicants were rejected that year, instead of about two-thirds as in 1849. Both of these Examiners, however, have a very bad name for rejecting claims. Even by Mr. Ewbank's Report, which I have read, it would seem that the Patent Office looks upon applicants as birds of prey, and the Examiners "snuff the battle afar off."—This is deeply to be regretted, because it unfits the Office to act candidly towards the inventors. I have heard many inventors threaten to agitate the question of reforming the Constitution, to bring back the old State Rights of Patents, and to abolish the jurisdiction of the Federal Courts in such matters. It would be no difficult matter to get two-thirds of the States to acquiesce in this change, just now; and if the Patent Office is not more careful than it has been, it will be a less difficult matter next year. JUNIUS REDIVIVUS.

New York, Nov., 1850.

A New Life-Boat.

A life-boat, quite novel in its design, has been invented in England. It has air-tight seats all round the side, but the bottom consists of open work of iron, so that the water passes freely through, and even wets the feet of the rowers. The advantage is, that the water inside and outside is on the same level, and the boat is balasted and kept upright by the water itself.

Steam Between Antwerp and New York.

We see it stated that a company of gentlemen in Belgium, have subscribed one-half the sum required to construct a line of four splendid steamships, to run between New York and Antwerp, provided the other half of the requisite capital be made up in the first named city. An agent of the company is now in New York to confer with capitalists and merchants on the subject.

New York Mechanics' Institute.

The Mechanics' Institute, of this city, will hold a grand Fair, next year, commencing about the first of June. The lecture season commenced last Monday, at Hope Chapel: the exercises were very interesting—Park Benjamin delivered a poetic lecture, "The Age of Gold." He kept the audience in a roar of laughter from the beginning to the end of it. It abounded with wit and humor. We hope our mechanics will patronise this Association,—if they study their own interests they will.

U. S. Circuit Court, N. Y. Judge Nelson presiding.—On the 13th inst., Wednesday last week, a verdict was given of $54 for infringement of a patent for improved Dumping Earth Cars. Finch (of Peekskill, we believe) was the plaintiff; Seymour & Rikeman, (stove manufacturers, Peekskill,) the defendants.

Washing Stairs or Passages.

The sides of stairs or passages on which are carpets or floor cloth, should be washed with sponge instead of linen or flannel, and the edges will not be soiled.