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when the bolt is turned on its axis, the brass piece and the anchor, may be raised or lowered perpendicularly, so that the poles of the horse shoe may be brought nearer or placed farther apart. The end of the lever supports a gimbal $i$, from which a cord passes over the a gulley, which supports the weight $l$, counterpoising the weight to the post $0 . m n$, is a shoulder piece with two adjusting screws to keep the lever within due bounds, and partly so far as the upper screw is concerned to check the motion of the lever. After it is counter poised, the battery circuit is completed and the magnetic attraction takes place before the measuring begins. $P$ is a running weight on the small tram wheel wagon, which may be moved backwards and forwards between the fork like termination of the toothed rod $S T$, in which the ratchet wheel $R$ works. $[\mathrm{By}$ means of a sliding bar (not visible in the sketch,) the latter may be used as a catch so that till then the toothed rod can be moved freely. The lever must be horizontal, laid out by a level. The distance from the fulcrum of the lever to the point where the weight is suspended, is four feet two inches-that is 20 times the distance from the fulcrum to the ax is of the pin. The object of the apparatus is to perform exact experiments on the lifting power of electro magnets.

## RAILROAD NEWS.

New York and Erie Rallroad.
This great road commences on the Hudson river, about twenty five miles above thiscity. From Piermont it proceeds to Dunkirk on Lake Erie. It is constructerd-on-the bedead guage and 200 miles of it is now finished, viz. to Binghampton. The whole length when cempleted will be 475 miles. The original estimate of the cost of the New York and Erie Railroad was $\$ 7,000,000$, including $\$ 1$,500,000 formachinery \&cc. 5 years ago the sum of $\$ 4,746,950$ had been expended, and apparently very little progress made. It was only last winter that the first locomotive and train of cars passed from Piermont to Binghampton ; at which point the expense had reached the sum of $\$ 9,802,433$, including however, some heavy work executed west of Binghampton. By next December it is calculated that trains will reach Hornellsville, 77 miles further west,-that is, 301 miles from this city, at which time it is supposed the work will have cost $\$ 13,000,000$; when an additional $\$ 3,000,000$, making in all $\$ 16,000,000$, will be required to carry it to the lake shore.
It is a splendid road and although constructed at a great expense yet it is calculated that when the road is completed it will do an annual business equal to $\$ 3,000,000$, at an expense of $\$ 1,500,000$, leaving a net revenue of the last named amount ; which, after payment of 7 per cent. interests on loan and floating debt, amounting to $\$ 465,000$, will allow of 7 per cent. dividends, (amounting to $\$ 630,000$ ) on the $\$ 9,000,000$ of stock, with a surplus of $\$ 345,000$ as a sinking fund, applicable to the redemption of bonds, of which there may be about $\$ 7,000,000$.

The citizens of McMinniville, Tenn. have taken steps to connect that place by a branch with the Chattanooga Railroad. The estimated cost of the work is $\$ 180,000$, of which $\$ 50,000$ was subscribed up to the 7th mst. and the list is rapidly increasing.
The negociation of the Bonds of the Colambus and Xenia, Ohio, Railroad, has just been completed by Messrs. Winslow, Lainer \& Co. The eatire amount is $\$ 300,000$, secured by a mortgage on the road, \&cc. to John J. Paimer, trustee, at 7 per cent interest, payable in ten years and convertible into stock at the pleasure of the holders.

