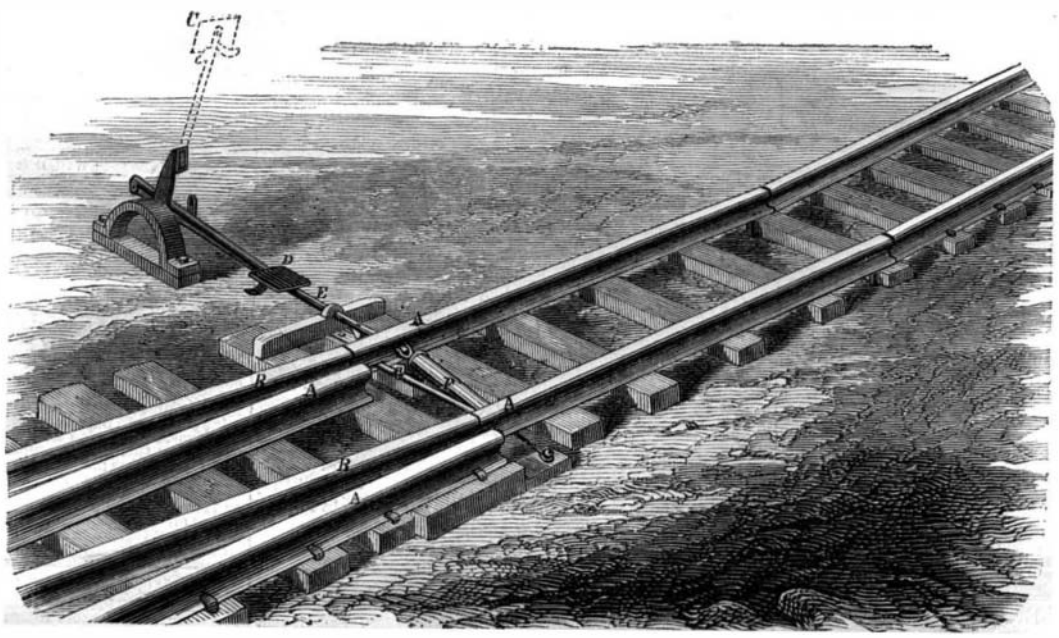
Self-adjusting Railroad Switch.

The carelessness or inattention of switchmen has been one among the causes of some of the most deplorable accidents on our railroads. Wherever a siding occurs it is not in so constant use as the main line, and is generally designed for occasional and temporary purposes. Consequently, if a switch keeps the main line intact, except at the time while being operated, it subserves the usual purposes of a railroad switch. The improvement illustrated in the engraving is intended to firmly lock the line, and to bring the rails back to their normal position as soon as the force which removed them is withdrawn.



ZINN'S SELF-ADJUSTING RAILROAD SWITCH.

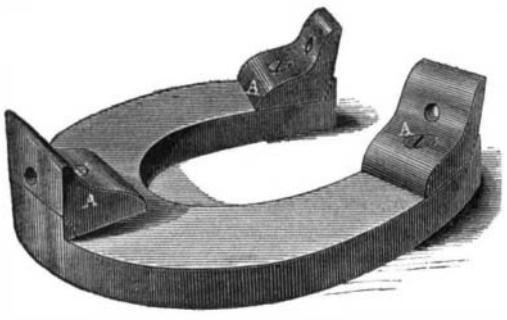
Let A represent the rails of the main line, and B the turnout. The switchman, to connect the switch with the siding, depresses the lever from its position at C, and brings it to a horizontal position, retaining it there by his weight upon the seat, D.

To assist him in holding it, a lug on D can be made to catch on the bar, E. When the lever is released, a strong spiral spring in the cylinder, F, brings the rails back to position, where they are held securely by the catch-spring, the end of which is seen at G. This spring has a projection which rises above the base of the rail and secures it firmly, so that no accident can displace the track. The first movement of the lever from its upright position depresses this catch-spring and permits the shifting of the track. The device appears to be a very efficient and desirable improvement.

It was patented March 13, 1866, by John W. Zinn, Caldwell, N. J., to whom apply for further particulars.

LITZENBERG'S ADJUSTABLE SHOE CALKS.

The engraving represents a new method of applying winter calks to horseshoes. Its object and mode of application can be readily understood by the engraving. The shoe itself is forged, very like the ordinary summer shoe, except that at the toe and heel are left slight projections, against which the adjustable calks abut. The improvement is intended



to admit of the sharpening and adjustment of the calks without the aid of the smith. They are secured by a screw, A, passing through the shank of the calk and tapped into the shoe.

It was patented Aug. 21, 1866, through the Scientific American Patent Agency, by William Litzenberg, to whom applications for rights and for further particulars should be addressed, at Macomb, Ill.

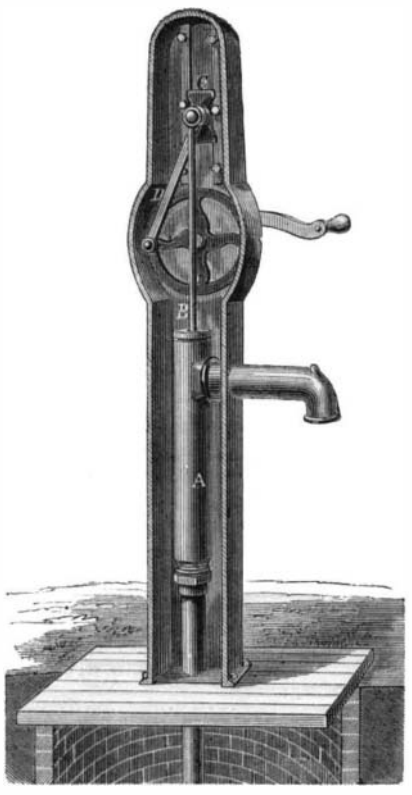
Railroad in the Alps.

Dr. Prime, over the signiture of "Irenius," is writing to the New York *Observer* very interesting letters from the continent. In his last he gives the following account of a railroad up the Alps to convey ice down to the European continental cities:—

"Penetrating secluded regions where frost has been king since the world began, the rail has made even the everlasting glaciers, these frozen cataracts, articles of merchandise. As the quarries in the mountains are worked by the art and spirit of man, so the icebergs that here grow from age to age, and scarcely seem to melt at all, are cut into blocks and transported by rail to Paris. The glacier of Grindelwald is drank in brandy punches at the Grand Hotel and the Louvre. To get the ice, these mighty frozen seas are excavated in galleries and chambers and magnificent saloons. The depths of snow on the surface exclude the sunbeams, but calcium lights shed a brilliant luster reflected as from a thousand mirrors of glass, and in small apartments fitted up for the purpose, the furniture of a well appointed parlor, sofas, chairs, and cushions, invite to cold but not inhospitable repose. When the Mer de Glace is taken by rail down into Italy and thence by ship to the East Indies, ice will be reasonably cheap in Calcutta. And this will be more readily done than to tow an iceberg from the North Pole."

ANDREWS'S LIFTING AND FORCE PUMP.

Solomon said "to the making of books there is no end." The statement is equally applicable to that



household implement, so extensively used, the pump. Still, although there may sometimes be failure of improvement where alterations are made, yet the pump has been improved; it could not well be simplified. The engraving of the pump herewith presented possesses qualities which, it is claimed, are not shared, combined together, by any other in the market. As will be seen, a rotary motion is easily transformed into a direct-acting reciprocating movement, and the pump can be used as a common lifting or as a force pump.

The pump itself is inclosed in a cast-iron case, one side left off in the figure, the case inclosing the working barrel, wheel, arm, and slide. A pipe leads down the well, and a nozzle or discharge pipe projects from the case. The common valves are contained in the barrel, A, and are operated by the rod, B, which is connected to the cross head, C, and receives motion from the arm, D.

It will be seen that all the motions affecting the working parts of the pump are direct, and that any part can be easily repaired when worn. It will also be noticed that there can be but little wear to these parts, and that, therefore, the pump may be kept in order for an indefinite time. It seems to be a very simple and effectual device for raising water.

Patented on May 8, 1866, by R. H. Andrews, whom address, Box 358, Washington, D. C.

POLISHING SLATE, brought from Bohemia, has been computed to contain in every cubic inch forty-one thousand millions of animalcules. Since a cubic inch of this slate weighs 220 grains, in every single grain there are 187 millions of skeletons, and one of them would therefore weigh about $\frac{1}{187000000}$ of a grain.

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