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A NEW POLICY IN LAW.

The impolicy of buying any species of property, without first making sure that the would-be seller has a legal right to sell, has been pretty thoroughly learned by most men. There are swindlers in every business, who are never better pleased than when they can "sell" an over-confiding buyer by persuading him to pay for property to which they can give no title. And when the dishonest seller has taken himself out of the way, and the honest but incautious buyer finds that he has paid for something he cannot hold, the real title from Trinidad to Willow Springs, maximum curves of 573 7 being vested in another, the case seems very hard. But the feet radius are freely used. Maximum grades are compenfact that the buyer purchased in good faith is not accepted sated for curvature at a rate of 0.05 feet per degree of curvaagainst the actual owner. To overturn this just rule of the rate of 1/2 inch per degree of curvature. From Willow law would open the way to no end of injustice. It would Springs to Las Vegas, 110 miles beyond, the line has been make it impossible for the owner of any piece of property to located on 70 foot maximum gradients, with 6° curves from retain possession of it, unless he were endowed with practi- maximum curvature. $cal\,omniscience\,and\,omnipresence,\,that\,he\,might\,always\,know$ To Advertisers.-The regular circulation of the SCIENTIFIC when and where he was likely to be defrauded by a false 56 feet at the north portal and 50 feet at the south end, mostly sale in which the purchaser should act in good faith, and at in solid rock, a shaft near the south portal was begun on the same time be able to appear on the spot at the critical June 1. The shaft reached the roof of the tunnel section is a distinct paper from the SCIENTIFIC AMERICAN. THE SUPPLEMENT moment to disprove the fraudulent seller's claim to proprie. July 9. Up to August 31 the track had reached a point 65 torship. On such terms no property would be worth the miles south of La Junta, and it became evident that the comtrouble and cost of maintaining possession of it.

> the same thing, if any buyer, purchasing in good faith, could i "switch-back" was made at once. Before the close of Deseller's lack of ownership? Or what would any horse or transporting material for the construction of 118 miles of the could sell it and the purchaser's title be good simply because was operated by the ordinary eight-wheeled American enhe bought in good faith and for his own use?

> would be quicker than farmers to denounce such a reversal "Uncle Dick," a "consolidation" eight wheeled connected of the rules of law, were such a thing proposed, however engine from the Baldwin shops, revolutionized transportamuch the innocent purchaser might suffer from his invest- tion on the "Mountain Top" line. ments in stolen goods. The courts very properly hold that the property.

has no title to convey.

lent patent sellers is only too true. So other men have drivers simultaneously with sufficient force to slide all the bought stolen horses in good faith, and town lots to which wheels, the maximum of adhesion is obtained. the seller had no legal title, and mining claims that had no legal standing, and railway stocks which had been uttered by men without proper authority to issue them, and stolen bonds, and in a thousand ways have paid their money and had no choice but to consider their loss the purchase price of dear experience. It remained for farmers to demand of Congress a special law for their protection, to shift the burden of their unwisdom to the shoulders of the rightful owners of what they thought they were buying.

THE ATCHISON, TOPEKA AND SANTA FE RAILROAD OVER THE RATON MOUNTAINS.

The railroad over the Raton Mountains, of standard 4 81/2" gauge, is a branch of the Atchison, Topeka and Santa Fé orology. Railroad, under the names of Pueblo and Arkansas Valley, in Colorado, and New Mexico and Southern Pacific, in the Territory of New Mexico. The Ratons, a spur of the Sangre de Christo range, culminate in Raton (or Fisher's) Peak, 9,800 feet above the level of the sea, while the summit of Raton's Pass is reached by the grade line at an elevation of 7,720 feet above the same plane. The following details of grade and curvature are condensed from a paper read by Mr. James **D**. Burr before the American Society of Civil Engineers:

From La Junta, Col., to Trinidad, a distance of 81 miles, ximum ascending grades of 60 feet per mile have been

The summit is passed by a tunnel, which will be 2,011 feet long. At the south portal of this, 7,584 feet above the sea, the line commences to descend the southern slope of the mountain, on 332 per cent maximum gradients, to Willow Springs, which has an elevation of 6,595 feet above tide. having made a descent of 990 feet in 38,400 feet, or a un form gradient of 2.58 per cent. On the mountain division, in any court as a valid reason for his holding the property ture, each 100 feet. The outer rail has been elevated at the

The excavation at each end of the tunnel being very deep, pletion of the tunnel must be hastened or a temporary track For instance, what would any man's farm be worth if any built over the mountains to avoid delay. It was, therefore, swindler could sell it from under him; or, what amounts to decided to build the mountain track, and a location for a hold the property on that plea alone and in spite of the cember, 1878, the track had been laid, and the work of wagon, plow or thrashing machine be worth, if any thief N. M. and S. P. Railroad began. At first the switch back gines, with 17 inch by 24 inch cylinders, 60 inch driving It is sheer absurdity to ask such questions; and no one wheels, weighing about 35 tons; but the advent of the

The ordinary round trip, $5\frac{1}{2}$ miles, requires 50 minutes. it is the buyer's business to find out whether the man he The ordinary train consists of 7 loaded cars, of 43,000 pounds buys of has a right to sell; and if he neglects so to do, he, each; tank of coal, 44,000 pounds; and engine, say 120,000 and not the true owner, must suffer the consequences. The pounds. Eight loaded cars can be taken over at one timelaw will punish the fraudulent seller if he can be caught and quite readily, and at one time 9 loaded cars were taken at convicted; but it is no part of its business to make good the one trip, so that during the day of ten hours 6,020,000 pounds buyer's loss-certainly not at the cost of the real owner of could very readily be moved over the mountain with one engine. The capacity of engines of this class is more The nature of the property sold does not alter in any way than double that of the two engines of 16 inch by 24 inch the moral or legal principles involved. The buyer can gain cylinders, while the quantity of coal consumed is but little no title beyond that which the seller is able to convey. This more than that consumed by a single light engine. As to is common sense, as it is common law. Yet a body of peo- controlling trains on these steep inclines it is a question of ple styling themselves the National Grange Patrons of Hus- brake and adhesion to the rail. Under fair conditions of rail bandry have had the assurance to petition Congress to re- one single hand-brake to each car, together with the driver verse this rule in all questions pertaining to patent rights. and tank brake, with three brakemen to a train of eight And the farmers of Northern Indiana have induced their rep-1 cars, is sufficient for safety, unless the train should acquire a resentative, Mr. Baker, to introduce into the House a bill speed of 18 to 20 miles per hour, in which event all the designed to make good faith on the part of the purchaser of wheels in the train might be skidded far enough to lead to a patent right a legal title to ownership, though the seller disaster. In the "Uncle Dick" this is reduced to a minimum; for, as sand can be delivered along the rails in front That a great many farmers have been swindled by fraudu- of all the wheels, and two sets of air brakes may act on all

-----DR. DANIEL DRAPER'S CONTRIBUTIONS TO METEOROLOGY.

In his report as Director of the New York Meteorological Observatory, for 1878, Dr. Daniel Draper takes occasion to review-briefly the work done by him in the observatory during the ten years since it was founded and placed in his charge. The high value of this work can be fully appreciated only by those familiar with the influence which his inventions have had in promoting the constant and exact recording of weather changes by automatic apparatus, and the important bearing which his special studies of climate have had on the recent rapid progress of the science of mete-

These studies have been serviceable in two directions-in correcting popular errors with regard to climatic changes, and in solving great problems in connection with the general sweep and movement of atmospheric changes.

Of the former sort may be mentioned the researches proving that, contrary to popular impression, the clearing of land does not diminish the fall of rain; that the climate of the Atlantic States is not undergoing appreciable change; and that, considered in periods of five years, the summer temperature of the United States has not undergone any adification

The "Mascaret." Large illustration. Arrival of the wave at Candebec-en-Caux, September 17, 1879.

- AV. ELECTRICITY, ETC.-The De Meritens Electric Machine, A re-markable new magneto-electric machine. 4 figures. Astonishing re-sults in connection with electric likhting. Science at the Theater. New use for photography.-Egyptian photo-graphs employed in illustrating the play of "La Venus Noire." De-scription of Egyptian monuments. 1 illustration. The ruins of the Temple of Comorabos, in Egypt.
- 7 BIOGRAPHY. Professor Nordenskjold. Life and labors of the great Swedish explorer. 1 figure. Portrait of Prof. Nordenskjold. Martyrs of Science: Denis Papin. Fig. 1 Destruction of Papin's steamboat by the water-men of Zeune. Joshua Heilmann. ig. 2. Heilmann obtains the idea of his Carding
- VI. SANITARY SCIENCE.—The Utility of Water Filters. A timely and yaluable discussion of water filters at the Social Science Congress, Manchester.
- VII.-NATURAL HISTORY, ETC. The Bouquetin. A new antelope at the Jardin des Plants, Paris. 1 illustration. The Himalayan Mouffion. 1 illustration.
- I. AGRICULTURE, ETC. Water Supply for Stock. Methods of ob-aining water from a distance. Preservation of Apples.

1. METEOROLOGY --New York Meteorological Observatory Report. Description of self-recording instruments invented by the Director. Dr. Daniel Draper --Self-recording mercurial bacometer --Nun ther-mometer. - Dry and wet pendit thermometers --Direction of wind gauge.--Velocity of wind gauge.--Force of wind gauge.--New of a self of the self "gauge.—Si s. 7 plates.

Of the latter sort are the determination of the great law used, with adverse grades of 30 feet per mile. Curves of that a very large proportion of the atmospheric fluctuations 1,146 feet radius are used, with a compensation or reduction of grades on curves at the rate of 0 05 foot each 100 feet for of the United States cross the country from west to each degree of curvature. Between La Junta and Trinidad east; that these fluctuations continue across the Atlantic, there are but three short planes of descending gradients of and that the time of their arrival on the European coast may any considerable moment. In order to locate a line on 30 be predicted. It is on the basis of these studies that the sucfeet ascending grades to the north, from La Junta to Trini- cessful prediction of the arrival of American storms in dad-compared with the location of the Kansas Pacific sur- Europe has been made possible, an achievement of the highveys made in 1871-2 on 70 feet maximum gradients each way est scientific and practical value.

-a loss of 3,000 feet in distance was sustained. From In the meantime Dr. Draper has, as already remarked, invented and improved a variety of meteorological apparatus Trinidad the line follows the valley of the Purgatoire; thence, turning sharply to the south, it ascends the northern by which the work of meteorological observation has been slope of the mountain proper by Raton Cañon, on two planes. turned over to automatic machinery, and the records of atmospheric fluctuations made continuous and unerringly ac-The first plane, from the mouth of Raton Creek to Morley, 8 miles, is nearly a uniform ascent of 105 6 feet per mile. At curate. The several pieces of apparatus employed in the Morley, with an elevation of 6,727 feet above tide water. a observatory are minutely described by Dr. Draper in his water tank, turn-table, etc., have been established. At the report, and the descriptions, with engravings, appear in the south end of this grade the second inclined plane commences, current issue of the SCIENTIFIC AMERICAN SUPPLEMENT. having 3.5 per cent maximum grades. Between Morley The entire outfit of a working observatory is covered by